

**Curtin Business School
School of Economics and Finance**

**Electronic Filing of Personal Income Tax Returns in Malaysia:
Determinants and Compliance Costs**

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Doctor of Philosophy
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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature : 

Date : 13 September 2013

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Abstract

Technology is regarded as necessary in modern living because it can enable people to do things faster, with less effort, using less paper and incurring less cost than manual processing. Millions of income tax returns are easily processed by technology if all of them are lodged through tax e-filing. With a tax e-filing system, tax authorities can increase their efficiency because the available human resources can be used for more important areas such as enforcement and auditing. However, it is unclear whether a tax e-filing system also provides the same benefits to the taxpayers in Malaysia because the take-up rates among Personal Income Tax (PIT) payers in Malaysia is considered unsatisfactory. For the year 2009, for example, it was reported that only about 30 percent of total PIT payers used the system. Hence, this study was conducted to examine the factors that affect the e-filing usage behaviour among PIT payers in Malaysia. In addition, the compliance costs in using the e-filing system were also investigated to understand whether the tax e-filing system really saves taxpayers costs in time and money.

A postal questionnaire survey of taxpayers throughout Malaysia was undertaken which yielded 242 usable responses, with a response rate of 10 percent. Data was analysed using the Statistical Package for the Social Sciences (SPSS) version 18. The responses were considered reasonably representative of the taxpaying population. The Unified Theory of Acceptance and Use of Technology (UTAUT), Technology Acceptance Model (TAM) and Social Cognitive Theory (SCT) respectively are among the major theories that were used as underpinning theories in formulating the framework for factors affecting the use of the tax e-filing system in the current study.

Further, by employing a logistic regression analysis, it was found that perceived usefulness and anxiety were two significant factors that affected a taxpayer's decision to use or not to use the e-filing system. Specifically, taxpayers with a high level of perceived usefulness and low level of anxiety were likely to use the system and vice versa. In terms of compliance costs, it was found that the overall e-filing compliance costs were estimated at RM658 per taxpayer, while the manual compliance costs were RM670 in 2010. This difference of less than two percent shows that there was no significant difference between the two filing methods. However, analysis by items of time costs indicated that the e-filing system did save

submission time by around 70 percent compared to the manual submission of a paper tax return.

One part of tax e-filing is the pre-filled return system, and this study also investigated the pre-filled return system in order to understand respondents' perceptions of such a system. Respondents indicated that they were concerned about the security of data in this new system although they agreed that pre-filing would help solve the problem of complexity.

This study is believed to be the first of its kind in Malaysia. Overall, the findings provide valuable insights and understanding into the factors that affect e-filing usage behaviour as well as empirical evidence regarding the effects of e-filing on tax compliance costs. One of the main conclusions is that, at the present time, tax e-filing provides the highest benefits for taxpayers who have relatively simple tax affairs; however, those with more complex returns remain problematical. In addition, a continuing and particular challenge remains in terms of both the application of technology to the tax return system and tax policy overall.

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Glossary of Key Terms

- Anxiety : The emotional response that happens when attempting to perform a behaviour that a person does not feel competent to perform.
- Compliance Costs of Personal Income Tax : Costs incurred by taxpayers in meeting the requirements laid upon them in complying with a given tax structure over and above actual tax payments.
- E-Filing Usage Behaviour : The actual behaviour of taxpayers towards the e-filing system in 2010, which is either “used” or “did not use” the system.
- External Influence : The extent to which a person believes that other peoples’ opinions influence his behaviour.
- Mean Reported Value : The average value of time per hour reported by respondents.
- Non-Compliance : The failure to comply with the tax law reporting requirements either intentionally or unintentionally.
- Perceived Usefulness : The perception of taxpayers that the e-filing system would enhance their filing process and that the system is easy/free of effort.
- Personal Income Tax : A tax levied on income of any person derived from salaries, wages and other investment incomes such as dividend and rentals, and business income.
- Planning Costs : Avoidance costs in the quest to minimise tax liabilities.

- Pre-Filled Return System : A system where the tax administrator prepares a pre-populated income tax return using information held by the body and other third parties such as an employer and financial institution. Also referred to as a pre-filing system in this study.
- Psychological Costs : The state of mind upon completing the filing of income tax returns. Includes the feeling of being troublesome, vexation, oppression and other aspects most disliked by taxpayers.
- Recurrent Costs : The regular compliance costs or the continuing costs of doing a tax return.
- Ringgit Malaysia (RM) : The Malaysian currency and the currency mainly reported in this thesis. The average exchange rates for RM1 were AUD0.3425, EUR0.2336, GBP0.2008 and USD0.3086 in 2010. These rates are used to reflect the value of RM in the year data was collected.
- Self-Ability : The taxpayers' judgement of their capabilities to use the e-filing system in order to complete their income tax filing processes.
- Start-Up Costs : The reaction of compliance costs with the commencement of a new tax law or change over time to recurrent costs.
- Tax E-Filing System : An electronic income tax filing system which requires computer, tax software and internet connection.

Glossary of Key Abbreviations

ATO	Australian Taxation Office
AUD	Australian Dollar
CAD	Canadian Dollar
C-TAM-TPB	Combined TAM-TPB
DoI	Diffusion of Innovation
EFA	Exploratory Factor Analysis
E-Filing	Electronic Filing
EPU	Economic Planning Unit
ETAAC	Electronic Tax Administration and Advisory Committee, USA
EUR	European Euro
GBP	Great Britain Pound
GDP	Gross Domestic Product
Gld	Dutch Guilder
IRAS	Inland Revenue Authority of Singapore
IRBM	Inland Revenue Board of Malaysia
IRS	Internal Revenue Services
IS	Information System
IT	Information Technology
ITA 1967	Income Tax Act 1967, Malaysia
ITAA	Income Tax Assessment Act, Australia
ITBM	Individual Taxpayer Burden Model
KMO	Kaiser-Meyer-Olkin
MAR	Missing at Random
MCAR	Missing Completely at Random
MM	Motivational Model
MPCU	Model of PC Utilisation
MTD	Monthly Tax Deduction
OECD	Organisation for Economic Co-operation and Development
PAYE	Pay-As-You-Earn
PAYG	Pay-As-You-Go
PBC	Perceived Behavioural Control
PCA	Principal Component Analysis

PEOU	Perceived Ease of Use
PIN	Personal Identification Number
PIT	Personal Income Tax
PKI	Public Key Infrastructure
PU	Perceived Usefulness
RM	Malaysian Ringgit
SAS	Self-Assessment System
SCT	Social Cognitive Theory
SME	Small and Medium Enterprise
STD	Schedular Tax Deduction
STPM	Sijil Tinggi Pelajaran Malaysia (Malaysian High Certificate of Education)
TAM	Technology Acceptance Model
TDM	Total Design Method
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TRA86	Tax Reform Act 1986, USA
UK	United Kingdom
USA	United States of America
USD	US Dollar
UTAUT	Unified Theory of Acceptance and Use of Technology
YA	Year of Assessment

Related Thesis Publications

Conference Papers

Ibrahim, I. (2010, 21-22 January). *The operating costs and overall benefits of e-filing system for Malaysian income tax system*. Paper presented at the 22nd. Australasian Tax Teachers Association (ATTA) Conference, University of New South Wales, Sydney.

Ibrahim, I. (2011, 13-14 June). *Compliance costs of electronic tax filing for personal taxpayers in Malaysia*. Paper presented at the International Conference on Management, Penang.

Ibrahim, I. (2012, 16-18 January). *Factors underpinning usage behaviour of an electronic filing system: The case of Malaysian personal taxpayers*. Paper presented at the 24th. Australasian Tax Teachers Association (ATTA) Conference, University of Sydney, Sydney.

Journal Publication

Ibrahim, I., & Pope, J. (2011). The viability of a pre-filled income tax return system for Malaysia. *The Journal of Contemporary Issues in Business and Government*, 17 (2), 85-101.

Chapter 1

Introduction

1.1 Thesis Overview

This study was motivated by concerns about the unsatisfactory tax electronic filing (e-filing)¹ take-up rate among Personal Income Tax (PIT) payers in Malaysia. Technology has also changed the way a tax system is designed and administered. In light of the changing methods of filing tax, e-filing is considered useful and more efficient as it enables the tax administration to handle a large number of taxpayers. However, the system should also significantly reduce the compliance costs for its users in order to promote its adoption by many more taxpayers.

The system is to facilitate the Self-Assessment System (SAS), which has been implemented by countries that require income tax returns to be submitted annually, such as the United States of America (USA) and Australia. The system is considered successful if the take-up rate is high (Legris, Ingham, & Collette, 2003, p. 191). In Australia, the take-up rate of e-filing among individuals achieved 90 percent for the 2009/10 tax year (Australian Taxation Office, 2010, p. 190). In the USA, a goal was endorsed to achieve 80 percent of all tax returns to be submitted electronically.² However, in Malaysia, the level of acceptance is only about one-third of total PIT payers in 2011.³

Tax e-filing is the submission of tax form data to a taxing authority in a computer file format through an internet connection (Edwards-Dowe, 2008, p. 6). In order to e-file, a taxpayer needs to have a computer, tax software and a reliable internet connection. In the context of this thesis, the e-filing system definition includes not only the process of filing, but also the filling of the electronic return. This is because free online tax software is embedded in the Malaysian e-filing system. The use of a

¹ For the purpose of this thesis, the short form of e-filing refers to the tax electronic filing unless stated otherwise.

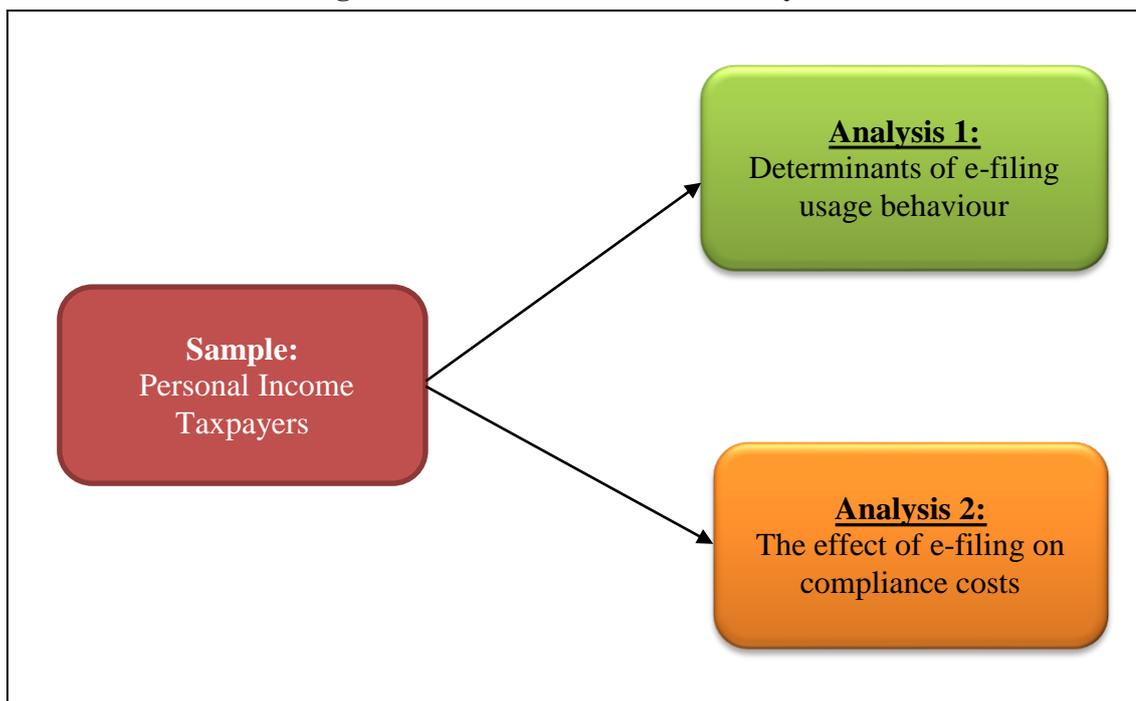
² The e-file rate for 2011 was reported at 77.77 percent (Electronic Tax Administration and Advisory Committee, 2012) (Electronic Tax Administration and Advisory Committee, 2011, p. 2).

³ See Table 2.3 in Chapter 2 for details on take-up rates of e-filing for 2006 to 2011. It increased from five percent in 2006 to 33 percent in 2011.

roaming Public Key Infrastructure (PKI) concept ensures the security of the online system (Inland Revenue Board of Malaysia, 2010a). These features (free online software and roaming PKI) are believed to increase the convenience and safety of the e-filing system because users do not have to download the tax software to a computer.

Whilst there are numerous interesting unanswered questions surrounding the tax e-filing system, this study focuses on the determinants of the e-filing usage behaviour and the effect of e-filing on compliance costs for the PIT system. Specifically, the main analysis of the present study is two-fold. As depicted in Figure 1.1, first, the present study examines the variables that explain the behaviour of PIT payers towards the e-filing system. After that, the compliance costs related to e-filing and manual filing users are compared to identify any differences and to test whether the differences are statistically significant. The examination of the effect of the e-filing system on compliance costs, as compared to manual filing, is crucial because, theoretically, lower compliance costs denote an improved system and vice versa. Goolsbee (2004, p. 135) argues that people will use tax software (or the whole tax e-filing system in the Malaysian case) when they perceive that the costs are lower than their old methods (either manual self-completion or using a tax accountant's help).

Figure 1.1: Division of Thesis Analyses



This chapter begins with the thesis overview, followed by an analysis of the key terms used regularly in this study. Next, the background of the research is presented to understand the issues surrounding the tax e-filing system. Following that, the research questions and objectives are identified. After that, the research approach and methodology employed and scope of the study are presented to provide a clear overview of the thesis direction. The significance of the present study is then highlighted. Finally, the thesis structure is provided.

1.2 Definition of Major Terms

1.2.1 E-Filing System

The e-filing system refers to the general submission of any file through the computer and internet without any hard paper copy. Specifically, for this thesis, the e-filing system refers to the electronic filing of income tax returns. It is the submission of tax form data to a taxing authority in a computer file format through an internet connection and may be done at any computer (Edwards-Dowe, 2008, p. 6).

1.2.2 E-Filing Usage Behaviour

E-filing usage behaviour refers to the actual behaviour of taxpayers towards the e-filing system. The respondents who used tax e-filing were labelled “1” and those who used manual filing were labelled “0”. This actual behaviour is the dependent variable used in the e-filing usage behaviour model for this thesis. This is different from many previous studies that focused on the intention to predict the e-filing usage behaviour (see, for example, Ilias, Suki, Yaso', & Abdul-Rahman, 2008; Che-Azmi & Bee, 2010; Schaupp, Carter, & McBride, 2010). Using intention, respondents normally are asked to indicate whether they agreed or disagreed with statements such as “I intend to use the system in the next year” (Venkatesh, Morris, Gordon, & Davis, 2003, p. 460). In the present study, respondents were asked to indicate whether they used e-filing or manual filing to submit their PIT return in 2010 in order to determine their actual e-filing behaviour.

1.2.3 Perceived Usefulness

Perceived Usefulness (PU) is one of four independent variables in the e-filing usage behaviour model. This study utilised the combination of definition for *PU* and *Perceived Ease of Use (PEOU)* by Davis (1989). This is because the items for both variables (*PU* and *PEOU*) were combined together into one group by the Exploratory Factor Analysis (EFA) in this study. Davis (1989, p. 320) defines *PU* as “the degree to which a person believes that using a particular system would enhance his or her job performance,” while *PEOU* is “the degree to which a person believes that using a particular system would be free of effort”. Taken together, the *PU* for the present study refers to the perception of taxpayers that the e-filing system would enhance their filing process and the system is easy/free of effort.

1.2.4 Self-Ability

Self-ability is the second independent variable in the model of e-filing usage behaviour in this study. It is defined as the taxpayers’ judgement of their capabilities to use the e-filing system in order to complete their income tax filing processes. This definition is based on *perceived efficacy* by Albert Bandura in Social Cognitive Theory (SCT) (Bandura, 1986, p. 391). The definition does not relate *self-ability* to skills that people possess but rather their views on their ability to e-file.

1.2.5 Anxiety

Anxiety is the third independent variable included in the e-filing usage behaviour in this study. *Anxiety* is the emotional response that happens when attempting to perform a behaviour that a person does not feel competent to perform (Compeau & Higgins, 1995, p. 196). It can lower the perception concerning *self-ability* (Stumpf, Brief, & Hartman, 1987, p. 93). *Anxiety* negatively influences the e-filing usage behaviour.

1.2.6 External Influence

External influence is the final independent variable in the e-filing usage behaviour model for this study. For this study, it is defined as the extent to which a person

believes that what other people say about what he/she should or should not do influences his behaviour. For example, a friend thinks that Adam should use tax e-filing. So what is the extent to which Adam believes his friend's statement influences his behaviour? The *external influence* tested for this study includes family members, colleagues and the Inland Revenue Board of Malaysia (IRBM). This variable is similar to *subjective norms* in the Theory of Planned Behaviour (TPB) by Ajzen (1985) or *social influence* in the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003).

1.2.7 Pre-Filled Return System

A pre-filled return is defined as “an original tax return prepared by the revenue authority for the taxpayer, using information obtained from third-party sources and other sources (for example records of the revenue body)” (Highfield, 2006, p. 332) (Highfield's underlining).

1.2.8 Tax Compliance Costs

The most commonly referred to definition of compliance costs is by Sandford, Godwin, and Hardwick (1989, p. 10), as follows:

“...those costs incurred by taxpayers, or third parties such as businesses, in meeting the requirements laid upon them in complying with a given tax structure. They thus include, for individuals, the costs of acquiring sufficient knowledge to meet their legal requirements, of compiling the necessary receipts and other data and of completing tax returns; payments to professional advisers for tax advice; and incidental costs of postage, telephone and travel in order to communicate with tax advisers or tax office.”

1.2.9 Exchange Rate

As this study focuses on Malaysian data, the Malaysian Ringgit (RM) is the main monetary unit reported in this study. Nonetheless, in many instances, the monetary unit is also stated in Australian Dollars (either in parenthesis or footnote). As a

general guide, the exchange rates for one unit of Malaysian Ringgit to Australian Dollar (AUD), European Euro (EUR), UK Pound (GBP) and United States Dollar (USD) are shown in Table 1.1. The rates are the average rates for 2010, calculated based on the 2010 rates provided by the Central Bank of Malaysia (2012).⁴ The exchange rates for 2010 are used in this study as the data collection for this study is related to year 2010.

Table 1.1: Average Exchange Rate for RM1, 2010

AUD	EUR	GBP	USD
0.3425	0.2336	0.2008	0.3086

1.3 Background

In dealing with PIT, some countries require the PIT payers to file annual tax returns, while other countries free the majority of the PIT payers from this requirement through accurate tax withholding (Organisation for Economic Co-operation and Economic Development, 2008b, p. 5). Similar to the USA and Australia, PIT payers in Malaysia are responsible for filing an income tax return annually after the end of each tax year. This requirement imposes a burden on the taxpayer to fill, file and keep relevant records before paying or receiving any refunds.

The taxpayers' burden is said to increase with the implementation of the SAS. As a result, to facilitate the filing process under SAS, the IRBM introduced the e-filing system for PIT payers in 2006 (Inland Revenue Board of Malaysia, 2007a, p. 47). The tax e-filing system is considered a convenient way to file tax returns, and, therefore, should be an economical method of tax lodgement. Hanefah (2007, p. 17) states that e-filing will lead to greater tax compliance as well as lower tax compliance costs for taxpayers due to the paperless environment.

However, it is puzzling why the use of the e-filing system is still low in Malaysia although it had been implemented for almost five years up to 2010. Among the reasons provided by previous literature on low technology acceptance are the taxpayers' characteristics such as gender or age. The complexity of the system as well as the individual's tax affairs also contribute to the decision to use or not to use

⁴ Rates are available from the Central Bank of Malaysia website:
http://www.bnm.gov.my/index.php?ch=statistic&pg=stats_exchangerates&eId=box1.

the e-filing system (Goolsbee, 2004, p. 125). However, literature on technology acceptance shows that both low learning costs (easy to use) and high benefits (usefulness of the system), are major factors that determine the acceptance of a technological system.⁵

Malaysia consists of multi-racial or ethnic groups with Malays, Chinese and Indians comprising the three majority ethnic groups. The Population and Housing Census, Malaysia for the year 2010, revealed the following: from a total population of about 28 million, Malays constituted more than 63 percent of all Malaysians in Peninsular Malaysia, while Chinese and Indians represented about 25 percent and seven percent respectively (Department of Statistics Malaysia, 2011b, p. 5). The remainder are comprise of Malaysian indigenious and other races. The Malay language is the official or first language used in schooling and other official matters, while English is the second language. Other languages, such as Mandarin and Tamil, are also widely-used among Chinese and Indians respectively. This diverse background is important as it may influence the acceptance of tax e-filing, especially when the languages set in the e-filing programmes consist only of Malay and English.

Studies on e-filing acceptance have also been carried out in Malaysia. However, they are limited in sampling coverage, which may not represent the actual taxpaying population in Malaysia. For instance, Abdul-Manaf, Ishak and Abdul-Warif (2010) only focused on PIT payers in Shah Alam. Shah Alam is a city in the State of Selangor, which is considered to be more developed than the other parts of Malaysia and receives a higher household income than other states, such as Kedah or Kelantan (Economic Planning Unit (EPU), 2011). A more representative sample is required if the result is to be generalised for the whole population.

Unfortunately, relatively little research has been undertaken to address the issues surrounding the e-filing system as outlined above and to update the compliance costs estimate as a result of technology. Particularly for Malaysia, there is no consistent research and comparable figures on compliance costs for PIT, and they are narrow in sample coverage. Due to this reason and the unanswered questions surrounding the low take-up rate of e-filing, the present study aimed to investigate the factors that

⁵ The two variables (perceived usefulness and perceived ease of use) are the variables in the Technology Acceptance Model (TAM) by Davis (1989). More explanation on this theory is presented in Section 2.5.1, Chapter 2.

influence the PIT payers decision on the filing method selected (that is, e-filing or manual filing) and whether the e-filing system really reduces the taxpayers costs by investigating the effect of e-filing on compliance costs. Relating to a change in tax system, Sandford (1995b, p. 5) includes the changes in technology as one of the reasons for researchers' interest in the study of compliance costs.

1.4 Research Objectives and Questions

1.4.1 Research Objectives

The main theme of this thesis is tax e-filing for personal taxpayers. Overall, the objectives of this thesis are:

1. To identify the factors that either impede or motivate e-filing usage behaviour; and
2. To investigate the effect of e-filing on compliance costs.

1.4.2 Research Questions

In more detail, this thesis seeks to provide answers to the following major and minor research questions, as detailed in Table 1.2.

Table 1.2: Major and Related Minor Research Questions

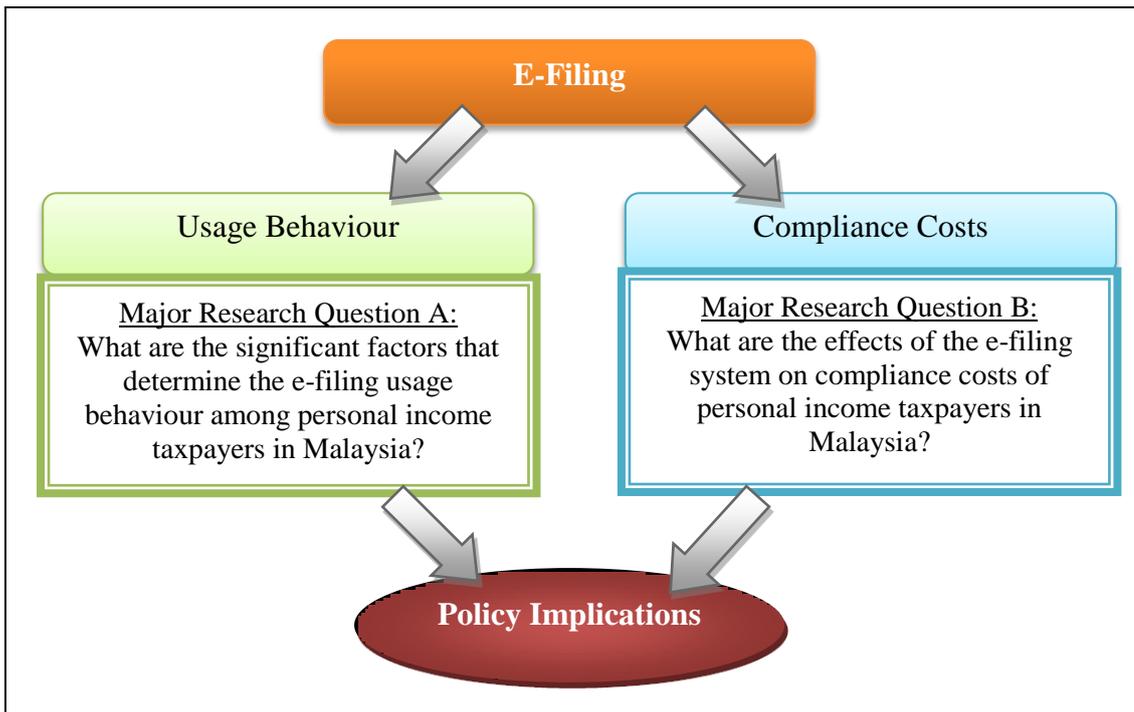
Major Research Question	Minor Research Question
A. What are the factors that determine the e-filing usage behaviour among PIT payers in Malaysia?	1. What is the current level of acceptance of e-filing system among PIT payers in Malaysia? 2. What are the characteristics of e-filers and manual filers? 3. Is it desirable to increase the take-up rate of e-filing? 4. If so, how to increase the take-up rate? 5. What are the perceptions of personal taxpayers concerning a pre-filled return system* in Malaysia?
B. What is the effect of the e-filing system on compliance costs of PIT payers in Malaysia?	1. What are the overall estimated compliance costs for PIT in Malaysia? 2. What is the magnitude of compliance costs for personal taxpayers in Malaysia? 3. How much is the difference between compliance costs for e-filing and manual filing? 4. Which compliance costs items/activities differ significantly between manual and e-filing systems? 5. What is the level of compliance costs for the PIT system in Malaysia compared to other countries?

Note: *A pre-filled return system is a system that optimises the information system technology to match the information held by the tax authority and third parties about a taxpayer and to pre-populate the information in his/her income tax return. Through this system, the tax authority prepares the income tax return for taxpayers.

1.5 Conceptual Framework

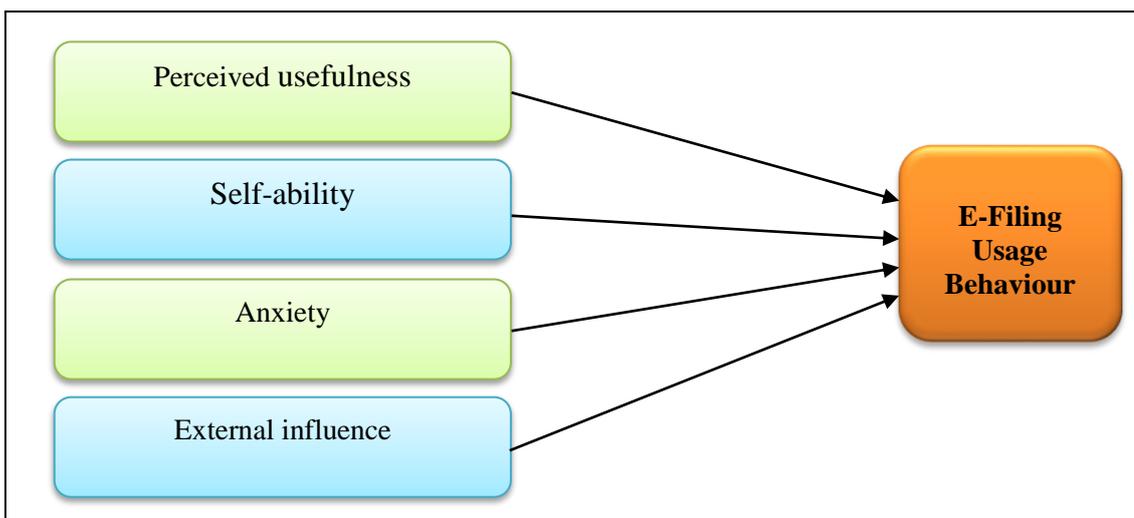
As stated in the previous section, this thesis is divided into two main analyses. Specifically, this thesis first analyses the tax e-filing in relation to factors that determine the adoption of the system. This is in relation to the major research question A and objective 1 of the study. After that, this study investigates the compliance costs estimation and the effect of e-filing on compliance costs by comparing the mean compliance of e-filing and manual filing costs and other relevant analysis. The policy implications derived from findings of both analyses are then presented. Data evidence is gathered from a cross-sectional mail questionnaire survey, which was conducted in 2010 (for the 2009 Year of Assessment (YA)). The overall conceptual schema for this thesis is summarised in Figure 1.2.

Figure 1.2: Overall Conceptual Framework



The final model for the first analysis on determinants of e-filing usage behaviour consists of four continuous independent variables – namely *perceived usefulness*, *self-ability*, *anxiety* and *external influence* – and one dichotomous dependent variable – the actual *e-filing usage behaviour*, as shown in Figure 1.3.

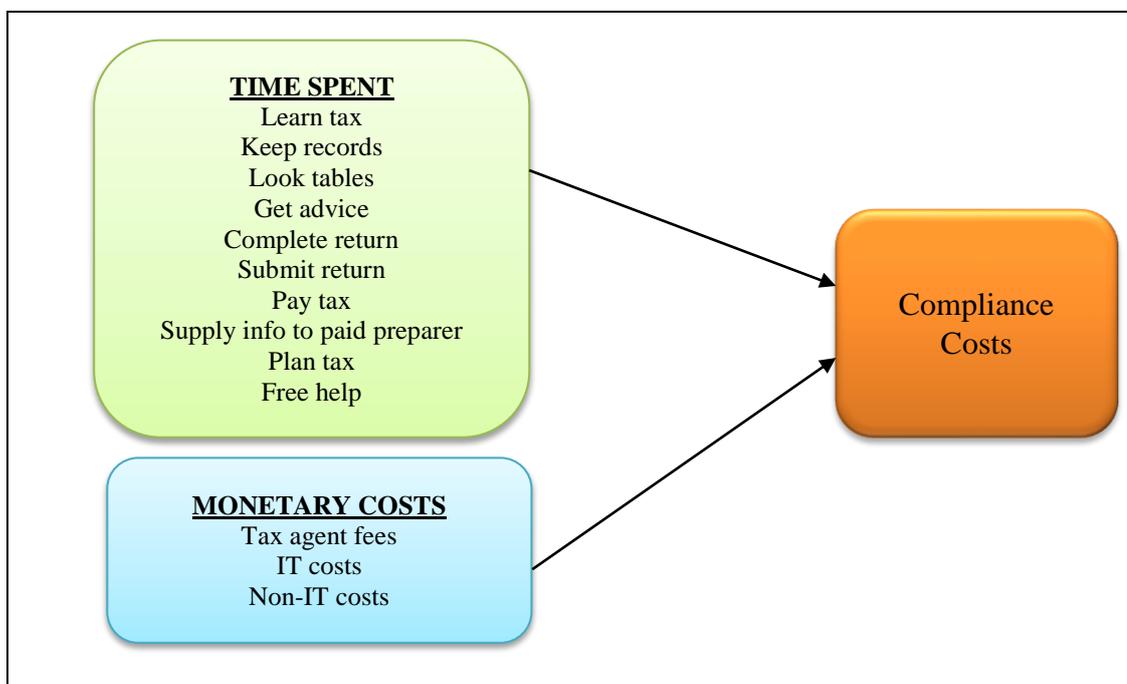
Figure 1.3: Model for the Determinants of E-Filing Usage Behaviour



The model to analyse the compliance costs of PIT and to compare e-filing and manual filing compliance costs consists of two main independent variables that measure the costs. These variables are the time spent, which is then valued according

to specific rates,⁶ and the monetary costs. The time spent is divided into ten items, while the monetary costs are divided into three items. This is done for a better comparison between e-filing and manual filing. The model for compliance costs is shown in Figure 1.4.

Figure 1.4: Model for the Compliance Costs of Personal Income Tax



1.6 Scope of the Study

This study was carried out in 2010 for YA2009. This is because the due dates for income tax lodgement for YA2009 are 30 April 2010 and 30 June 2010 for PIT payers without and with business income, respectively.

The focus of this study was the PIT, which covers the individuals without business income as well as with business income. This study did not include any analysis for corporate or Small and Medium Enterprise (SME) income tax. For the purpose of the determinants of e-filing usage behaviour, only direct determinants were included in the model. This study focused on PIT payers, as their number is huge compared to other types of taxpayers, such as corporate or partnership. Increasing the take-up rate among individual taxpayers is more desirable since many are still not using the system and it is expected that more cost savings could be achieved if many start

⁶ Three values of time used are mean reported values, median and national wage rate calculated by author based on economic information available from the national statistics for Malaysia.

using the system. However, the factors that impede or motivate the use of e-filing should first be identified. The effects on compliance costs are also important because low compliance costs indicate a better system and vice versa.

In estimating the compliance costs and examining the effect of e-filing on compliance costs, the items include time spent on filing activities but exclude the time spent for tax appeals or legal activities as these activities are beyond the scope of e-filing. Moreover, neither Slemrod and Sorum (1984) nor Blumenthal and Slemrod (1992) included those activities in their PIT compliance cost estimates.

Demographic variables, such as age, gender and education, were not included in the model and were only analysed separately through the profile of e-filers and manual filers (to answer minor research question A2 – What are the characteristics of e-filers and manual filers?).

1.7 Significance of the Study

This study contributes to the developing stream of research on e-filing behaviour and compliance costs in a number of ways. First, although the research in the area of compliance costs has flowed for a number of decades (the first compliance costs study identified was by Haig (1935)), there are very few studies that identify the effect of different filing methods on compliance costs. Previously, in the USA, the reporting of compliance costs by the Internal Revenue Service (IRS) was by type of income tax return instead of by type of filing method (Guyton, O'Hare, Stavrianos, & Toder, 2003, p. 673). In Canada, although the cost of filing electronically is identified, the extent of differences between compliance costs for e-filing and manual filing has not been investigated (Vaillancourt, 2010). The present study provides evidence concerning the extent to which e-filing affects the compliance costs for PIT payers in Malaysia.

Secondly, the majority of the studies on technology acceptance, particularly the tax e-filing system, focus on the behavioural intention to predict actual behaviour (see, for example, Hwang, 2000; Fu, Chao, & Farn, 2004; Fu, Farn, & Chao, 2006; Hung, Chang, & Yu, 2006; Ozgen & Turan, 2007; Abdul-Manaf et al., 2010; Che-Azmi & Bee, 2010; Schaupp, Carter, & McBride, 2010). However, the present study focuses

on actual usage behaviour in respect of the e-filing system. The different model employed in the present study provides new insights concerning the measurement of factors that determine the acceptance of e-filing. This approach is supported in principle by Compeau and Higgins (1995, p. 205) who state that validation of measures is an ongoing process which needs to be evaluated over a variety of studies in either similar or different contexts.

The use of intention to predict actual usage behaviour in many technology acceptance studies may be due to the system still undergoing testing. It is still at an early stage where only a low percentage of intended users are actually using the system. For example, Wang (2002) studied the acceptance of tax e-filing in Taiwan five years after it was implemented; it was found that use of the system was very low, having less than eight percent of total PIT payers (Wang, 2002, p. 337). In contrast, Gallant, Culnan, and McLoughlin (2007) focused directly on usage behaviour in their study. Their objective was to differentiate the factors that affect both e-filers and non-e-filers. Similarly, the current study also aims to compare factors that impact upon the e-filers and non-e-filers alike. Thus, the researcher is of the view that the examination of actual usage behaviour is more appropriate than merely the intention to use.

Thirdly, most prior studies related to compliance costs focused heavily on developed nations, such as the USA, the UK, Canada and Australia (see, for example, Sandford, 1973; Slemrod & Sorum, 1984; Pope, 1989; Vaillancourt, 1989; Blumenthal & Slemrod, 1992; Pope, 1992, 1993b; Slemrod & Blumenthal, 1996; Evans, Ritchie, Tran-Nam, & Walpole, 1997; Evans & Walpole, 1997; Evans, 2001; Pope, 2002; Slemrod & Venkatesh, 2002; Pope, 2005; Vaillancourt & Clemens, 2008; Vaillancourt, 2010). Although they provide valuable insights, such findings and estimations of compliance costs may not be relevant for developing nations.

Moreover, Pope (2005, p. 211) recognises that most of the compliance costs studies have been carried out by rich countries with high Gross Domestic Product (GDP) per capita and English-speaking countries. This means their findings may not be applicable in developing countries. Although there are a few studies on compliance costs available in developing or emerging nations, they are very limited, especially in respect to the PIT system. Apart from a study in Slovenia (Klun, 2004), India is the

only country in which a comprehensive study on PIT compliance costs has been conducted (Das-Gupta, 2004). Thus, the present study provides insights into compliance costs through an alternate national lens for developing nations. It is also ensuing a country-specific compliance costs estimation (Pope, 2005, p. 203) for Malaysia.

Most importantly, to the author's knowledge, there is still a lack of reliable estimation of compliance costs for the PIT system in Malaysia. The one and only published paper by Sapiei and Abdullah (2008) may not provide the best estimate because their sampling scope was limited to the Klang Valley area and was small in quantity. Moreover, their methodology was vague, especially concerning the valuation of the time spent. Hence, the present study is considered the first to cover the whole geographical area of Malaysia and provide a better estimation of PIT compliance costs. The estimation also serves as a basis for future research.

Finally, the findings of this study concerning the effect of e-filing on compliance costs, the significant determinants of e-filing usage behaviour and the characteristics of taxpayers, potentially provide direction to policy-makers in designing appropriate strategies to increase the take-up rate of the e-filing system. As this study also provides some insights into the PIT payers' awareness in respect of a pre-filled return system, the results might be useful for the IRBM to formulate a strategy towards the implementation of this system.

1.8 Thesis Structure

This thesis is organised into nine chapters. Chapter 1 introduces the thesis where the background of the research is presented and the research setting is outlined. Following that, the research objectives and questions, conceptual schema, scope of the study, significant contributions of the thesis, and definition of terms are presented.

Chapters 2 and 3 focus on reviews of the literature and theory. The background of the PIT system and the development of the e-filing in Malaysia are presented. The chapter then reviews the existing literature and theoretical issues related to e-filing acceptance in previous literature to develop the model for determinants of e-filing

usage behaviour for the present study. In Chapter 3, the literature related to PIT compliance costs are discussed to establish an updated model to estimate the compliance costs with extra attention concerning the items affected by the e-filing system. Theoretical issues, such as the valuation of time and components of compliance costs, are also highlighted in order to choose an appropriate method to estimate the compliance costs for the Malaysian PIT payers.

Chapter 4 details the research methodology undertaken for this thesis. At the onset of that chapter, the research objectives are repeated with the emphasis on the type of research objective to suit the statistical analysis to be adopted and the research paradigm positioning is presented to explain the research approach of the thesis. The survey research design and measurement of important variables for both analyses 1 and 2, as described in the previous section, are presented. After that, the data analysis approach is discussed before the methodological assumptions and chapter summary are presented.

Chapter 5 reports on the analysis of the taxpayers' questionnaire responses for the present study. First, the response rates are presented. This is followed by the development of the respondents' profile by the type of filing methods (e-filing or manual filing). In addition, the level of education, level of Information Technology (IT) and tax knowledge, and use of paid preparers, free helpers or self-preparation are analysed according to the type of filing method to build a better understanding concerning the background of the respondents. The analyses of response representativeness and non-response bias are provided before the chapter ends.

Chapters 6 and 7 report the research findings for analyses 1 and 2 respectively where both the descriptive and inferential statistical results are presented. Chapter 6 presents the results on significant factors or determinants of the e-filing usage behaviour using logistic regression analysis. A refined model is developed to test the determinants of e-filing usage behaviour after the results from the EFA indicate some similarities among the items tested. Chapter 7 reports the distribution, estimation and magnitude of compliance costs according to respondent characteristics, in overall terms, and by filing method. After that, the statistical results on the effect of e-filing on compliance costs are presented.

Chapter 8 starts with a discussion related to major findings on the determinants of e-filing usage behaviour and the effect of e-filing on compliance costs of PIT system and the overall estimates of compliance costs. Results are compared with the previous findings and any differences are discussed. Included in this chapter is a discussion on profile of e-filers and manual filers, the desirability of an increased rate of tax e-filing, and methods to increase the take-up rate.

Finally, Chapter 9 summarises this thesis where the main findings are compared with the research objectives and questions. The empirical results are brought in alignment with the research questions and objectives and significant contributions of the thesis are highlighted. This chapter ends with policy and future research recommendations, and concluding remarks.

Chapter 2

Review of Literature and Theory: E-Filing Acceptance

2.1 Introduction

This chapter presents a review of the literature and theory related to tax e-filing acceptance. Such a review is crucial in providing an understanding of findings from previous studies and a theoretical background on factors that affect the e-filing usage behaviour. The review takes into account studies within international and Malaysian settings, focussing on PIT payers.

This chapter is divided into six sections. The next section presents briefly the overview of PIT in Malaysia. Following to that section is the discussion on the definition and background of tax e-filing. After that, previous studies internationally and in Malaysia related to e-filing acceptance are reviewed. Theoretical issues related to e-filing acceptance and the pre-filled return system, are discussed in section five. Finally, the chapter summary is presented.

2.2 Overview of Personal Income Tax System in Malaysia

The PIT system in Malaysia is regulated by the *Income Tax Act, 1967* (ITA 1967). The law mandates all individual taxpayers to submit their income tax return to the IRBM annually (Section 77) and to keep relevant records and documents for up to seven years (Sections 82 and 82A). This indicates that there are situations that require PIT payers in Malaysia to incur extra time and money in order to fulfil the requirements; this extra time and money are referred to as compliance costs.

The PIT payers who are resident for Malaysian tax purposes are eligible for a number of reliefs and rebates. Reliefs are deductions against chargeable income while rebates are offsets against tax liability. However, many compliance costs components are not included in reliefs or rebates, and are not deductible against gross income or chargeable income. For example, taxpayers who incur tax professional fees to help them prepare their annual return are not allowed to deduct the fees against the income or tax liability. This is because tax professional fees do

not meet the “wholly and exclusively” test under Section 33 of the ITA 1967. According to Section 33, only expenses that are wholly and exclusively incurred in the production of the relevant source of income are deductible from the gross income. This stipulation undoubtedly increases the costs of compliance with the tax system for those who genuinely need a professional assistance.

In the period from 2006 to 2008, PIT formed the country’s third major source of revenue, after corporate and petroleum taxes. Personal taxpayers in Malaysia are categorised into two main groups, namely, salaried taxpayers (or those without business income) and self-employed taxpayers. The IRBM requires the first group to fill in Form BE and the latter group Form B. Form BE excludes information from business income, thus the form is thinner and should be easier to complete than Form B. As of 2008, there were about 4.6 million PIT payers in Malaysia, of whom 67 percent were salaried taxpayers. In 2009, the total number of registered PIT payers was reported to increase to 4.8 million. This indicates that a large number of persons are involved in this system and that acknowledgement of the compliance costs issue is necessary. Further details on the number of taxpayers by type of taxpayers are shown in Table 2.1. At the time of writing, these figures were only available for 2008.

Table 2.1: Number of Personal Taxpayers by Type of Taxpayers, 2008

Type of Taxpayers	Number	Percentage (%)
Salaried taxpayers (Form BE)	3,092,912	67
Self-employed (Form B)	1,496,204	33
Total	4,589,116	100

Source: Unpublished data provided by the IRBM through personal communication (25 March 2011).

Salaried taxpayers in Malaysia are subjected to a Monthly Tax Deduction (MTD).⁷ The MTD system commenced on 1st January 1995 under the provision of the Income Tax (Deduction from Remuneration) Rules 1994 (the MTD Rules) as gazetted in Explanatory Notes by the IRBM (2010b). Under this deduction, a portion of gross salary will be withheld by employers as tax liability, but it is not a final tax. This means that salaried taxpayers are still required to fill in and file an income tax return annually. Moreover, the withholding tax is not an accurate amount. The MTD is

⁷ Previously known as the Scheduler Tax Deduction.

similar to the Pay-As-You-Go (PAYG) system in Australia.

Self-employed taxpayers or businesses are subject to tax liability paid in instalments based on their estimated income for the relevant YA. This system is in accordance with the current year assessment system, where the income is assessed in the year it is derived. Under this system, the self-employed are required to estimate their income based on last year's income for the purpose of tax liability calculation and pay the estimated tax liability via instalments. The instalments are paid before the end of the tax year period. It is essential to understand tax liability payment methods via the MTD and instalment systems because both methods reduce the probability of cash flow benefits that can be offset against the compliance costs.

The SAS was introduced in stages in Malaysia. First, it was applied to the corporate income tax system in 2001 and then expanded to individuals and businesses in 2004. Under this system, each taxpayer is responsible for completing and filing his/her tax form, calculating the tax liability, and paying accordingly or waiting for a refund, if any (Kasipillai, 2009). In short, the system is based on the concept of "pay, self-assess and file" (Inland Revenue Board of Malaysia, 2012). This system increases the responsibilities of a PIT payer. In the early years especially, it increased the burden on individuals to learn the tax law (Mansor, Saad, & Ibrahim, 2004, p. 13). The SAS is considered to increase the compliance costs for PIT payers substantially.

Although the main aim of the SAS was to increase voluntary compliance (Kasipillai, Mustafa, Noraza, & Munusamy, 1999, p. 16), the non-compliance rate after the SAS was implemented remained unchanged, even after more than seven years in operation. In 1997 (before the SAS), about 31 percent of the total returns issued by the IRBM were not filed (Kasipillai et al., 1999, p. 12). After the SAS implementation, it was reported that about 1.3 million taxpayers who had filed their tax return in previous years did not file for 2005 (Krishnamoorthy, 2006). Lai and Choong (2009, p. 3) estimated that the Malaysian Government lost approximately RM308 million (about AUD\$100.7 million)⁸ during that year due to the non-compliance. Data from the IRBM annual reports and unpublished data received from them reveals that the basic non-compliance rate ranged from 23 percent to 40 percent

⁸ Exchange rate of RM1 was equal to AUD0.3425 in 2010. Refer to Section 1.2.9 in Chapter 1 for explanation of the exchange rate.

in 2004 to 2008.⁹ This situation suggests that the compliance costs for taxpayers under the SAS need to be investigated. Details on the non-compliance rate are shown in Table 2.2.

Table 2.2: Issuance and Receipt of Form BE Tax Returns and Basic Non-Compliance Rate for Salaried Taxpayers from 2004 to 2008

Year of Assessment	Issued/ Active Files	Received	Basic Non- Compliance Rate (%)
2004	1,959,183	1,283,888	34
2005	2,198,914	1,683,201	23
2006	2,105,802	1,621,233	23
2007	3,000,272*	1,796,725	40
2008	3,092,912*	1,982,955	36

Note: *The number increased from previous years due to separate assessments for married couples starting from 2007.

Source: Annual Reports 2005, 2006 and 2008 (2006, 2007a, 2009a) and personal communication through email with the R&D Department, IRBM (25 March 2011).

One of the main reasons cited for non-compliance among Malaysians is the low level of tax knowledge among taxpayers (Kasipillai, Aripin, & Amran, 2003, p. 144; Kamaluddin & Madi, 2005, p. 87; Palil & Lymer, 2009, p. 35; Madi et al., 2010, p. 221). With relatively low tax knowledge, Malaysian salaried taxpayers may not be competent to exercise appropriate compliance under the SAS (Loo & Ho, 2005, p. 53). In addition to tax knowledge, Saad (2011, p. 430) found that taxpayers' attitude and subjective norms are two important determinants of compliance among Malaysian taxpayers. Compliance is also discouraged by high compliance costs (Slemrod, 1989, p. 172). Allers (1994, p. 35) argues that people may try to reduce compliance costs simply through non-compliance. Therefore, it is necessary to investigate the level of compliance costs for PIT in Malaysia.

Compliance costs are defined as those costs incurred by taxpayers, or third parties such as businesses, in complying with the requirements of a given tax structure (Sandford et al., 1989, p. 10). They include the costs of time spent by a taxpayer on completing the tax form or in preparing information for the tax agent or accountant and money spent by a taxpayer on professional fees and miscellaneous costs such as postage and phone calls (Pope, Fayle, & Duncanson, 1990, p. 1). They are also

⁹ Unfortunately, more recent data is not available.

considered by some as a taxpayer's excess burden (Guyton et al., 2003, p. 675).¹⁰

In line with the implementation of the SAS, the IRBM introduced e-filing system to facilitate tax compliance in preparing and filing the PIT returns (Lai, Obid, & Meera, 2004, p. 100). It was hoped that the system, which was considered more convenient, would reduce non-compliance. Nevertheless, as shown in the data reported in Table 2.2, the non-compliance rates are still as high as when the e-filing was not introduced. The non-compliance rate jumped from 23 percent in 2006 to 40 percent in 2007. This outcome is the opposite of the result expected from the e-filing system. Thus, e-filing should be investigated to determine whether it really facilitates filing, and in particular whether it reduces the compliance costs and is effective overall.

There are a number of studies in this area. Among the earlier studies on e-filing in Malaysia is a study by Sulaiman, Abdul-Khalid, and Ibrahim (2005) that surveyed tax agents in the northern region of Malaysia. That study found that no tax agents used the e-filing system to file their customers' return forms during the study period. Other studies by Lai et al. (2004) and Lai, Obid, and Meera (2005) found that taxpayers in Malaysia had strong usage intention in relation to e-filing but they were wary of the security of the e-filing system. They also found that the quest for "speedy tax refunds" was ranked as the most important incentive for the respondents to embrace the e-filing system (Lai et al., 2005, p. 99).

There are more recent studies that investigated the factors affecting the acceptance of e-filing in Malaysia (see, for example, Ramayah, Ramoo, & Ibrahim, 2008; Ambali, 2009; Ramayah, Yusoff, Jamaludin, & Ibrahim, 2009; Abdul-Manaf et al., 2010; Che-Azmi & Bee, 2010). However, none of them investigated the compliance costs of e-filing, and all the studies focused on a limited geographical area such as Penang or the Klang Valley. This might mean that the findings do not represent the whole population of PIT payers in Malaysia. Therefore, the present study examines the effect of e-filing on compliance costs and the determinants of e-filing adoption in a broader sampling frame, which incorporates all states in Malaysia. The next section analyses the development of the e-filing system in Malaysia and relevant literature.

¹⁰ Further discussion on compliance costs is available in Section 3.2, Chapter 3.

2.3 Definition and Background of Tax E-Filing System

2.3.1 Definition

Tax e-filing is a general term for electronic filing or electronic lodgement or declaration of tax returns. It is the submission of tax form data to a taxing authority in a computer file format through an internet connection (Edwards-Dowe, 2008, p. 6). In order to e-file, a taxpayer needs to have a computer, tax software and a reliable internet connection. These are also the basic prerequisites for implementing a successful tax e-filing system (Miles, 2007, p. 34).

In addition to the definition of e-filing above, the current tax e-filing system in Malaysia also integrates free web-based tax software for filling in the tax data online. The free tax software provided by the IRBM is similar to the e-tax system in Australia. In the USA, taxpayers must buy the tax software or use professional tax filing services. Therefore, the tax e-filing system in Malaysia can be described as online tax data filling and filing of income tax returns using a computer and an internet connection. Tax e-filing in Malaysia can be performed by taxpayers themselves or through a tax preparer.

2.3.2 Background

Many countries have adopted the e-filing system. The first country that used an e-filing system was the USA for the 1986 filing period with the primary objective of improving efficiency in the processing of tax returns (Spoge & Trewin, 2003, p. 13; Anderson, Fox, & Schwartz, 2005, p. 66). The objective was clearly in preference towards the tax administrator. Prior to the launching of the system in the USA, the IRS worked closely with tax professionals and tax-preparation software providers (such as H&R Block and Intuit) to ensure a successful launch (Fletcher, 2002, p. 1). This was because a majority of PIT payers in the USA engaged a paid tax preparer (Blumenthal & Christian, 2004, p. 201).

Australia learnt from the USA experience and successfully launched its first pilot electronic filing system in 1991 with one tax agent in Adelaide. The system was released nationally by the Australian Taxation Office (ATO) in July 1997 (Turner &

Apelt, 2004, p. 257). More than half of PIT payers used the system after a decade in operation (income year 2006/07) and Australia has a target of 95 percent of e-filing users (Australian Taxation Office, 2007, p. 4). In the income year 2009/10, the number of PIT e-filers reached 90 percent (Australian Taxation Office, 2010, p. 190); five percent short of the target. The ATO has enhanced the e-tax system to include a pre-filing option for certain income and deduction information.

Singapore also piloted a tax e-filing system around the same time as Australia and its system was ready for use nationally in 1999, and in the UK, the e-filing project began in 1997 with the service first made available to tax agents and then expanded to individual taxpayers in 2000 (Turner & Apelt, 2004, p. 256). Other countries that introduced tax e-filing systems were Canada in 1992, Spain in 1999, France in 2001 and Latin countries such as Brazil in 1997, Argentina in 2002, Chile in 1999 and Guatemala in 2001 (Edwards-Dowe, 2008, p. 7).

2.3.3 Tax E-Filing System in Malaysia

In 1991, Malaysia released Vision 2020, a roadmap for the creation of a knowledgeable and technology-literate workforce. One of the Vision 2020's flagships is the concept of electronic government (e-government). The main objectives of e-government are to improve the government's internal operation and to deliver high-quality services to the people of Malaysia (Ambali & Hashim, 2007). The electronic tax filing system is one example of e-government implemented by the tax authority of Malaysia. The tax e-filing system was introduced with the objectives of facilitating taxpayers' filing of income tax returns within the SAS as well as increasing the efficiency of the tax revenue authority operations (Inland Revenue Board of Malaysia, 2009b, p. 11).

The tax e-filing system is not a mandatory system in Malaysia. It was first introduced to company taxpayers in 2001 (Sun, 2001). It was a pilot project involving five large accounting firms in Malaysia and their clients. The e-filing for PIT payers was considered to be officially launched in February 2006 (Inland Revenue Board of Malaysia, 2007a) although it was first tried in February 2005 (Inland Revenue Board of Malaysia, 2009b, p. 5). This is probably due to the incomplete free package whereby taxpayers had to incur costs in order to use the system, which resulted in

very low take-up rate in 2005. During 2005, the number of users of the e-filing system was reported to be only 25 salaried individuals (Inland Revenue Board of Malaysia, 2007b, p. 11; 2009b, p. 53).¹¹ The poor acceptance of e-filing in 2005 was mainly because taxpayers had to buy a digital certificate (RM19.90)¹² and a card reader (about RM150.00 to RM200.00)¹³ in order to e-file. Taxpayers probably perceived that e-filing was expensive and only benefited the tax administrator. Recognising the low take-up rate, the IRBM has tried to overcome the high costs for a digital certificate and its reader.

In 2006, the tax e-filing system was officially launched to PIT payers. The digital certificates, using Public Key Infrastructure (PKI), were given free of charge to taxpayers. However, to download the digital certificate and the e-filing software (in Adobe package), a taxpayer needed a Personal Identity Number (PIN), which could be obtained from the IRBM. In addition, the e-filing system required the latest operating system and Windows (Windows XP at that time) in order to operate. Another limitation was that only the computer that was downloaded with the digital certificate could be used to complete the e-filing process. This means that if a taxpayer did his/her e-file at home, he/she cannot continue the e-filing at their office computer or any other computer. As a result, although the take-up rate of the e-filing system among PIT payers for 2006 increased to 188,747, this number still only accounted for about five percent of total PIT payers.¹⁴

The e-filing system was further improved in 2007, regarding the e-filing web-based software. Using the web-based software, the user of the system needed only to download a digital certificate, and could directly use the online software without downloading it. The PIN was also sent out to taxpayers along with the hard copy of tax returns so that they did not have to go to an IRBM branch to get one. However, the problem of doing the e-filing at the same computer with the digital certificate remained. Taxpayers could not continue doing their e-filing at different computers. Nevertheless, the take-up rate for 2007 showed significant progress to reach 20

¹¹ See also Table 2.3 on users of tax e-filing in Section 2.3.3, Chapter 2.

¹² The digital certificate was then downloaded into MyKad (citizenship card) or “invest card” for the purpose of security and digital signature (Source: personal communication through email with the R&D Department, IRBM (25 March 2011)).

¹³ The card reader is to read the digital certificate from MyKad or “invest card” (Source: personal communication through email with the R&D Department, IRBM (25 March 2011)).

¹⁴ Refer to Table 2.3 in Section 2.3.3.

percent of total PIT payers that is more than 873,000.¹⁵

A significant improvement in 2008 was that the digital certificate was made roaming (roaming PKI). Through this system, taxpayers could easily use and continue their e-filing anywhere, anytime at any computer they like as long as they have the proper internet connection. Moreover, some basic taxpayer information (such as file number, name and address) was pre-populated in the electronic form. The benefits of e-filing were more tangible as the hard copy tax return was no longer printed in 2008 for those who had used e-filing in the previous year. In addition, the system was developed for tax agents so that a tax agent could also use the system on behalf of a taxpayer. The take-up rate of e-filing among the PIT payers for 2008 increased to 25 percent of total PIT payers and has reached more than 1 million users, or about five percent increased from 2007 users of e-filing.¹⁶ The roaming PKI tool remains in use until the present.

One feature worth noting is that the e-filing system was only available in the Malay language. This hinders the ability of those who are not fluent or confident speakers of the Malay language to use the system. Specifically, this situation may induce Chinese, Indians and other indigenous persons (especially in Sabah and Sarawak), for whom Malay are not their first language, to use manual filing rather than e-filing. It may also prompt them towards greater use of tax professionals to file returns, compared with those for whom Malay is their first language. Admittedly, this shortcoming was improved in 2009 by the inclusion of an English language translation to attract as many e-filing users as possible. However, the inclusion of only English as an alternative to the Malay language may not be enough if a taxpayer has low knowledge in both the Malay and English languages. The e-filing take-up rate for 2009 was 31 percent of total PIT payers that is more than 1.4 million (an increase of six percent from the previous year).¹⁷

Another obstacle is the busy period at the end of the deadline (30th April each year) that slows the e-filing process. This is because many taxpayers prefer to wait until the last minute to e-file. Delays at the peak period occur because the IRBM server has limited capacity to process large e-files. Although the IRBM increased the server

¹⁵ Refer to Table 2.3 in Section 2.3.3.

¹⁶ Refer to Table 2.3 in Section 2.3.3.

¹⁷ Refer to Table 2.3 in Section 2.3.3.

capacity in 2008 (Inland Revenue Board of Malaysia, 2009a, p. 38), it was still not enough to accommodate an increased number of taxpayers in later years. The Malaysian tax e-filing remains prone to congestion at the end of the filing period probably due to the e-filing web-based software. Using the web-based software, all information entered into the e-filing is stored in the IRBM server. In contrast, the Australian e-tax software is downloadable and can be used without an internet connection. Internet connection is required only when the e-file is to be lodged. Details on the take-up rates of the e-filing system from 2006 to 2010 are shown in Table 2.3.

Table 2.3: Users of Tax E-Filing, 2006 to 2011

Year	Total PIT Payers	Users of Tax E-Filing	
		Number	Percentage (%)
2006	3,486,450	188,747	5
2007	4,451,443	873,095	20
2008	4,589,116	1,168,251	25
2009	4,785,452	1,460,209	31
2010	5,040,782	1,658,443	33
2011	5,254,007*	1,723,186	33

Note: *Estimated data based on average increment for the last three years.

Source: Information from the IRBM Annual Reports 2006 to 2010 (Inland Revenue Board of Malaysia, 2007a, 2008, 2009a, 2010a, 2011a), IRBM media release (May 2012) and unpublished data from personal communication through email with the R&D Department, IRBM (25 March 2011).

Although the e-filing system has been constantly improved year by year, there is still a large portion of taxpayers who refuse to use the system in Malaysia. As indicated in Table 2.3, only one-third of PIT payers utilised the system in 2010 despite the claim that the e-filing system, as a technological assistant, should be able to reduce the non-compliance rate and compliance costs (Goolsbee, 2004, p. 124; Bird & Zolt, 2008, p. 793, note 6). According to Edwards-Dowe (2008, p. 3), the tax e-filing system may not be efficient in a developing country because the underlying administrative processes have not been reviewed; in addition, there are typically limited IT resources. Overall, information system implementation is considered costly and has a relatively low success rate in many parts of the world (Legris et al., 2003, pp. 191-192).

In the USA, the IRS set a goal to achieve at least 80 percent of e-filing returns (Electronic Tax Administration and Advisory Committee, 2010, p 1; 2011, p. 2). To assist in meeting the goal, the Electronic Tax Administration Advisory Committee (ETAAC) was set up to report the progress to Congress annually. The responsibilities

of ETAAC involve researching, analysing and making recommendations on a wide range of electronic tax administration issues. A body or committee like ETAAC may be needed to oversee the e-filing progress in Malaysia.

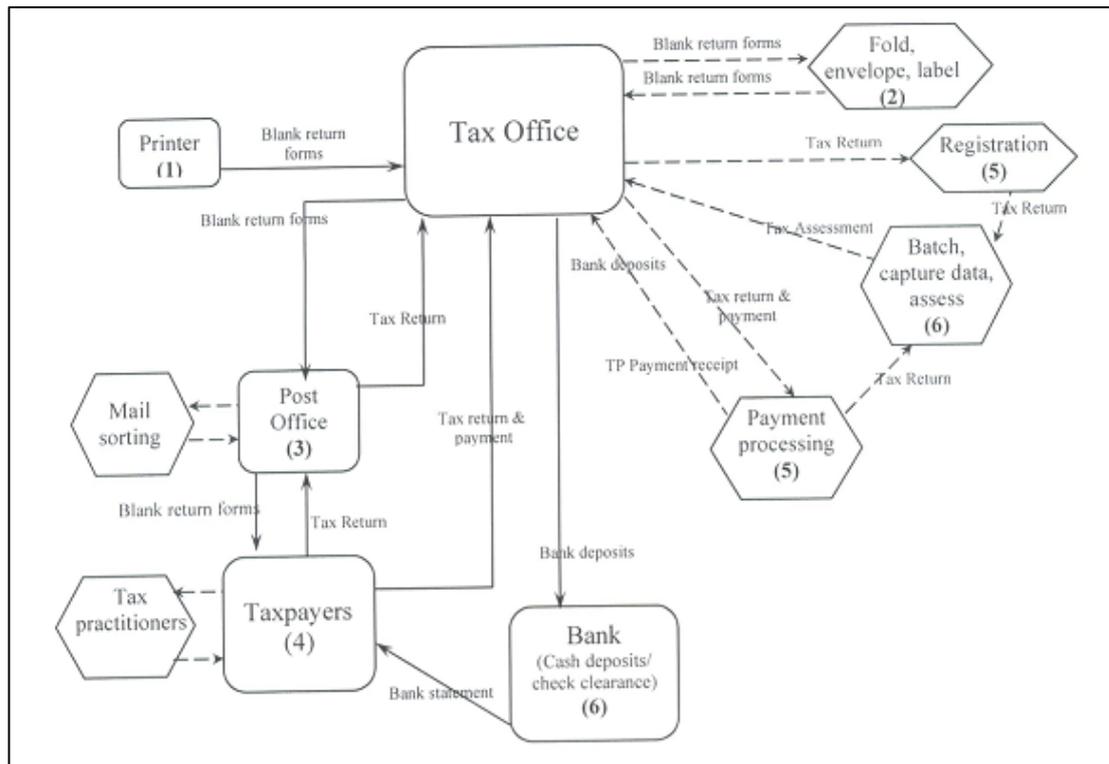
It is timely to examine the factors that affect the resistance among the majority of taxpayers in Malaysia towards the e-filing system from the taxpayers' point of view and to investigate the effect of e-filing on compliance costs. It is hoped that the findings of the present study can provide some policy indicators for the IRBM to improve the e-filing system in order to meet the taxpayers' needs.

2.3.4 Benefits of Tax E-Filing

Overall, an e-filing system is more efficient than a manual filing system because the e-filing system reduces the number of processing activities involved in manual filing, which ultimately reduces the processing time. The processes involved in tax filing and payment systems under the e-filing and manual filing systems are summarised in Figures 2.1 and 2.2, respectively, for comparison. In manual filing and payment, five entities (printer, tax office, post office, taxpayer and bank) and four processing activities are involved with the tax office. In contrast, only the tax office, taxpayer and bank are involved and every process is done online in the e-filing system.¹⁸

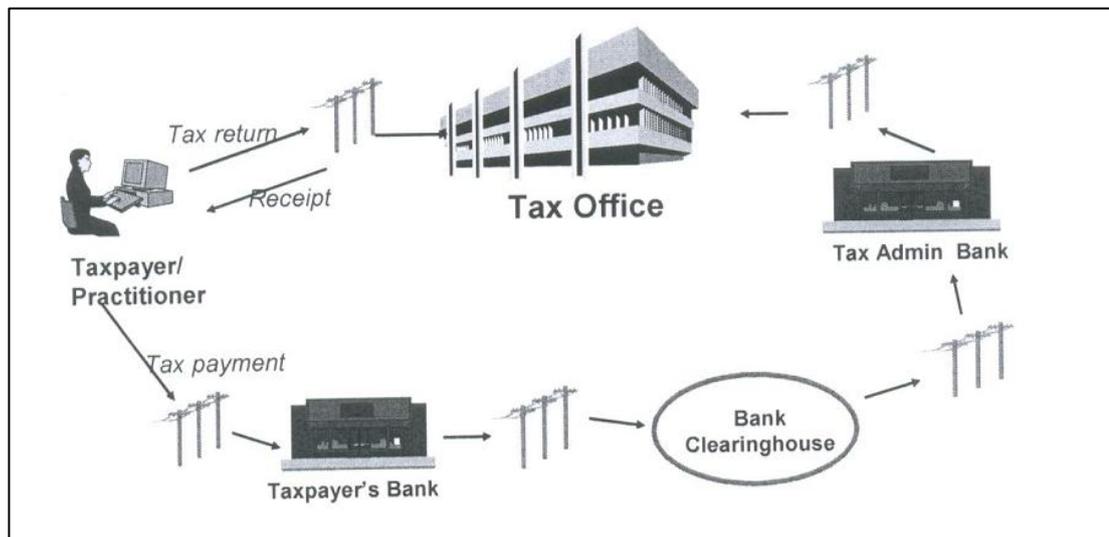
¹⁸ It should be noted that this study only focused on tax e-filing and not the e-payment systems.

Figure 2.1: Tax Manual Filing and Payment Processes



Source: Edward-Dowe (2008, p. 4).

Figure 2.2: Tax E-Filing and E-Payment Processes



Source: Edwards-Dowe (2008, p. 10).

The e-filing system saves printing and papers (Angle & Pandit, 2006, p. 68). Therefore, it is considered more environmentally friendly (SAGE Research Corporation, 2006, p. 15). The benefits of a tax e-filing system can be divided according to three main categories of users: the tax administrator, the taxpayer and the tax preparer.

The benefits for the tax administrator may be more obvious since technology can significantly increase the efficiency of processing large returns. According to the IRBM, the processing time can be reduced by half (from 1.4 activities completed per day to 3 activities completed per day) and the printing and postage costs of RM3.73 per return can be saved (Inland Revenue Board of Malaysia, 2007b, p. 11). The e-filing system can replace many of the steps in manually checking, keying in and processing a large number of tax returns. The system can also reduce costs related to printing and posting the paper returns. Administrative costs can be reduced by replacing the handling of paper returns and removing the need to hire large numbers of staff to fold, stuff and open returns, sort attachments and capture data (Edwards-Dowe, 2008, p. 8). This is probably the main reason for many developed countries such as the USA and Australia setting a high take-up rate target for e-filing.¹⁹

In terms of processing income tax returns, e-filing not only reduces the time but also the error rate. Fletcher (2002, p. 11) reports that the error rate for electronically filed income tax returns was less than one percent, compared to 20 percent for paper returns. Moreover, the tax office can save space for cupboards to store the paper returns (Miles, 2007, p. 31). Consequently, tax administration can be more productive and can allocate resources to priority areas such as tax education and auditing that are more important in the era of the SAS as compared to the old system. Kashiwagi (2002, p. 1) reports that the adoption of electronic tax filing is perceived to benefit a country because it leads to simpler and more efficient administrative procedures, and able achieve higher collection rates.

A taxpayer, on the other hand, can also benefit from the e-filing system if it is not increasing the taxpayer's compliance costs. First, and foremost, the e-filing system may be perceived as a convenient way to file because a taxpayer can do the filing anytime at his or her convenience and does not have to pick up or order tax forms (Edwards-Dowe, 2008, p. 8). Moreover, by using tax software for e-filing, information from prior years can be transferred; the filing process will be stepped through; deductions and credits will be identified; all the mathematical calculations will be done automatically, and hypothetical tax calculations can also be explored by the user (SAGE Research Corporation, 2006, p. 8). As a result of these processes, e-

¹⁹ The USA has set a goal of at least 80 percent of all federal tax returns, while Australia has set the goal of achieving 95 percent of PIT payers using the e-filing system.

filing may reduce error and avoid penalty. Another important benefit that attracts taxpayers to e-filing is that e-filing promises tax refunds will be delivered quicker as compared to manual filing (Angle & Pandit, 2006, p. 68). It is also evidenced in Lai et al.'s (2005, p. 99) study in Malaysia that a quicker refund is an important incentive for taxpayers to choose the e-filing system.

Similar to taxpayers, tax preparers benefit from the convenience and ease of using e-filing. E-filing is considered an efficient way to file tax returns and can make the tax preparer firm more productive (Anderson et al., 2005, p. 69). All the clients' files can be stored in soft copy which means less storage is needed and the files can be easily retrieved and transferred to the new tax year (SAGE Research Corporation, 2006, p. 14). The tax preparers' views on the benefits of e-filing are vital to boost the take-up rate particularly when the majority of taxpayers depend on their services. The success of e-filing take-up rates in Australia, for example, is believed to be due to the tax agent portal. It is reported that the total number of tax agent logins in tax year 2009/10 was more than 31 million (Australian Taxation Office, 2010, p. 190).

Besides all the benefits stated above, electronic tax services have also become a central focus of the Organisation for Economic Co-operation and Development (OECD) in recent years. The tax e-filing and pre-filing systems are examples of electronic services delivery that are aimed at helping tax authorities increase efficiency, effectiveness, fairness and reduce the compliance costs (Organisation for Economic Co-operation and Economic Development, 2010, p. 2). In making an electronic approach successful, the OECD suggests that strategic objectives should be set²⁰ and taxpayers' preferences and behaviour should be studied (Organisation for Economic Co-operation and Economic Development, 2007, p. 57). This confirms that the role of the e-filing system in taxation is an important research subject. The next section discusses previous studies in the area of income tax e-filing system acceptance in Malaysia and around the world.

²⁰ A survey carried by the OECD (2010) indicates that many OECD countries have set their e-services strategic objectives (for example: Canada – five percent increase in the share of total self-service undertaken by taxpayers; Denmark – all communication to be made electronically by 2012; and Japan – to raise e-service usage rates to more than 65 percent by 2013) as well as measures designed to assess the quality of the effectiveness of the e-services provided.

2.4 Previous Studies

2.4.1 International Studies

This section discusses the literature related to the acceptance of e-government in general and the tax e-filing system in particular. Taiwan has been the setting of a series of tax e-filing acceptance studies. For example, Chu and Wu (2004) used the TPB model in their study because they believed that the model could provide more effective guidance to policy-makers in promoting electronic filing. Their study suggested that perceived behavioural control is the most significant variable in determining the acceptance of e-filing, followed by attitude and subjective norms. Later, Hung et al. (2006) also used the TPB model to identify factors that influence the acceptance of e-filing. They found that *PU*, *PEOU*, *perceived risk*, *trust*, *compatibility*, *external influences*, *interpersonal influence*, *self-efficacy*, and *facilitating conditions* were the significant determinants of user acceptance of online tax filing.

Fu, Farn and Chao (2006) utilised the Technology Acceptance Model (TAM) to examine whether the model was applicable to e-filing and manual filing. They found that *PU* was the main determinant for both types of filing methods, while *PEOU*, *social norms* and *self-efficacy* results were different for both methods. They found that *PEOU* and *social norms* were only significant for manual submission but not significant for the e-filing method. *Self-efficacy* was found to be a significant determinant for e-filing but not for manual filing. The association of the demographic items with the usage of e-filing indicated that taxpayers who did not use e-filing had a lower education level, were older in age, had less computer and internet experience, had fewer IT resources, and were connected to the internet less frequently than taxpayers who utilised the e-filing.

The user acceptance of e-filing has also been actively studied in the USA. Many of the studies set in the USA utilised the UTAUT model with an integration of other variables such as trust and security (McLeod, Pippin, & Mason, 2009; Schaupp, Carter, & McBride, 2010). Results for the UTAUT constructs were consistently found to be significant but not for the other variables integrated in the model. Schaupp, Carter, and McBride (2010) and Carter, Schaupp, Hobbs, and Campbell

(2011) found that three out of four UTAUT constructs (*performance expectancy*, *social influence*, and *facilitating conditions*) were significant factors that affect the American intention to use e-filing. Carter et al. also found that trust factors were a significant determinant of e-filing intention. However, McLeod et al. (2009) found that trust factors (*security* and *privacy*) were non-significant factors in the intention to use the e-filing system, which indicates that Americans were willing to exchange trust for convenience.

Other countries that have been the setting of similar studies on the acceptance of e-filing include Turkey and India. In Turkey, the perceptions of certified public accountants towards tax e-filing and e-payment were examined using a multiple regression analysis by Ozgen and Turan (2007). They tested eight variables, namely *PU*, *PEOU*, *compatibility*, *perceived risk*, *self-efficacy*, *subjective norm*, *technology facilitating conditions* and *resource facilitating conditions* towards behavioural intention. Their findings suggest that *PU* and *PEOU* were the major determinants of e-filing acceptance; this supports the results found by researchers in other countries such as Taiwan.

In India, Ojha, Sahu and Gupta (2009) studied the factors that affect the e-filing acceptance among young professional individuals, while Sharma, Oman and Yadav (2011) focused on more general individual taxpayers. Using multivariate data analysis, both of the studies confirmed that *PU* and *PEOU* were statistically significant determinants in India. Besides *PU* and *PEOU*, Ojha et al. (2009) found external influences to be a significant determinant but this factor was not significant in the study by Sharma et al. (2011).

Analysis of the literature on e-filing acceptance around the world suggests that *PU* and *PEOU* are the two major determinants, with almost all studies finding them to be significant determinants. Nonetheless, findings on other factors such as *self-efficacy*, *external influences* or *subjective norms* and *anxiety* are not conclusive. The difference in results may be due to different samples, different years, and different tax structures in the relevant countries. Selected international studies on tax e-filing acceptance are summarised in Appendix A.

2.4.2 Malaysian Studies

There are a number of studies on e-filing set in Malaysia. At the beginning of the introduction of e-filing in Malaysia, studies on e-filing focused on the readiness and awareness of Malaysian taxpayers towards the e-filing system (see, for example, Lai et al., 2004; Sulaiman et al., 2005). Studies on factors that affect the acceptance or adoption of the e-filing system in Malaysia flourished in more recent years (see, for example, Hussein, Mohamed, Ahlan, Mahmud, & Aditiawarman, 2009; Ramayah et al., 2009; Abdul-Manaf et al., 2010; Dorasamy, Marimuthu, Raman, & Kaliannan, 2010; Hussein, Mohamed, Ahlan, & Mahmud, 2011). In addition, some studies have tried to develop a conceptual model that combines multiple theories to examine factors affecting the acceptance of e-filing with no empirical results (see, for example, Hussein, Mohamed, Ahlan, Mahmud, & Aditiawarman, 2010; Kamarulzaman & Azmi, 2010).

Theories regularly employed in Malaysian studies include TPB, TAM or combined TAM-TPB, and other models or variables. For example, Hussein, Mohamed, Ahlan, and Mahmud (2011) integrated TAM and Diffusion of Innovation (DoI) theory, plus other dimensions – such as *perceived characteristics of innovating*, *web trust and perceived risk*, *web service quality* and *political self-efficacy* – which they adopted mainly from Schaupp and Carter (2010) and Schaupp, Carter and Hobbs (2010). A summary of selected Malaysian studies on technology acceptance is shown in Appendix B.

Most of the Malaysian studies had found that variables tested in TAM (that is *PU* and *PEOU*) were significant determinants of e-filing acceptance. All of the previous studies examined the intention to use the e-filing as their dependent variable and most of them utilised Structural Equation Modelling (SEM) or normal regression analysis to analyse their data. This approach requires the multivariate assumptions such as normality, linearity and homoscedasticity to be fulfilled in order to produce reliable results (Hair, Black, Babin, Anderson, & Tatham, 2006, pp. 204-208).

However, most of the studies have narrow samples. For example, Abdul-Manaf et al. (2010) and Ramayah et al. (2008) only focused on taxpayers in Shah Alam and Penang respectively. These areas can be considered as developed areas in

comparison to other localities such as Alor Setar. Lean, Zailani, Ramayah and Fernando (2009) focused on friends and colleagues in Penang. Hussein et al. (2011) only included staff from five public universities in Malaysia. Their samples may not represent the true taxpaying population. Thus, the present study improves geographical coverage and the type of PIT payers by including all states in Malaysia and all types of PIT payers (either salaried or self-employed). In contrast to previous studies which focused on intention to use the e-filing system, the present study examines the actual e-filing usage behaviour and uses logistic regression to explain the factors underpinning tax e-filing usage behaviour. In addition, the present study confirms some of the previous findings on the significant determinants of tax e-filing acceptance. The next section discusses major theories used in previous studies that examine the factors affecting user acceptance in technology in general and in tax e-filing in particular.

2.5 Theoretical Issues

2.5.1 Major Theories

Two major theories that many researchers have utilised in predicting e-filing acceptance are the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) and Theory of Planned Behaviour (TPB) (Ajzen, 1985, 1991). Both theories measure the behavioural intention instead of the actual behaviour based on the premise by Ajzen and Fishbein (1980) that intention motivates behaviour. The TRA suggests that a person's behavioural intention depends on the person's *attitude* towards the behaviour and *subjective norms*. It is predicted that *attitude* and *subjective norms* are positively correlated with the behavioural intention.

In addition to TRA predictors, TPB includes *perceived behavioural control* as a predictor of behavioural intention. *Perceived behavioural control* measures people's perception of the ease or difficulty of performing the behaviour of interest (Ajzen, 1991, p. 183). Ajzen (1991) agrees that the concept of *perceived behavioural control* in TPB is similar to Bandura's (1982) concept of *self-efficacy* in Social Cognitive Theory (SCT). The *perceived behavioural control* should also have a positive relationship with behavioural intention. However, both theories are general theories

that predict behavioural intention and do not specifically focus on technology acceptance.

Due to a lack of theories available to specifically measure or predict the acceptance of computers or technology, Davis (1989) developed the Technology Acceptance Model (TAM). The theory proposed two main determinants of user acceptance, namely *perceived usefulness* and *perceived ease of use*. Davis (1989, p. 320) defined *PU* as “the degree to which a person believes that using a particular system would enhance his or her job performance”, while *PEOU* was defined as “the degree to which a person believes that using a particular system would be free of effort”. Davis (1989, p. 321) claims that *PEOU* corresponds with Bandura’s (1982) *self-efficacy*. Therefore, it is also similar to *perceived behavioural control* in the TPB model. The application of the TAM indicates that both *PU* and *PEOU* have a significant correlation with usage behaviour. The original TAM was then extended to include *subjective norms* as a determinant of user acceptance in TAM2 (Venkatesh & Davis, 2000).

Social Cognitive Theory (SCT) is an influential theory of social behaviour advocated by Bandura (1982). The application of the theory in computer or technology acceptance was attempted by Compeau and Higgins (1995). In contrast to Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980), Compeau and Higgins used actual usage behaviour as the dependent variable instead of the intention. Their predictor variables were *outcome expectations – performance*, *outcome expectations – personal*, *self-efficacy*, *affect* and *anxiety*. The present study is most similar to the approach taken by Compeau and Higgins as it also used actual behaviour to denote the dependent variable.

The UTAUT was developed by Venkatesh et al. (2003) to unify eight theories available in the acceptance of technology literature. The eight theories were TRA, TAM, Motivational Model (MM), TPB, Combined TAM-TPB (C-TAM-TPB), Model of PC Utilisation (MPCU), DoI theory and SCT. Analysis and comparison of the theories can be seen in Venkatesh et al. (2003, pp. 428-432).

Seven groups of constructs were found to be significant in the eight theories. They were named *performance expectancy*, *effort expectancy*, *social influence*, *facilitating*

conditions, attitude towards using technology, self-efficacy and anxiety. To validate the constructs, a survey was carried out on workers who were introduced to a new technology in the workplace at four organisations, using a longitudinal study. The final UTAUT model consisted of four direct and significant determinants of intention and usage behaviour. They were *performance expectancy, effort expectancy, social influence and facilitating conditions.*

The UTAUT model is widely used. It is not only a popular model in studies of IT adoption in general, but also in various areas of technology adoption which include e-government (see, for example, AlAwadhi & Morris, 2008b; Gupta, Dasgupta, & Gupta, 2008; Van Dijk, Peters, & Ebbers, 2008; Colesca & Dobrica, 2009; Alshehri, Drew, Alhussain, & Alghamdi, 2012), education (see, for example, Marchewka, Liu, & Kostiwa, 2007; Nanayakkara, 2007; Dulle & Minishi-Majanja, 2011; Maldonado, Khan, Moon, & Rho, 2011), healthcare (see, for example, Hennington & Janz, 2007; Wills, El-Gayar, & Bennett, 2008; Kijisanayotin, Pannarunothai, & Speedie, 2009), e-commerce (see, for example, Min, Ji, & Qu, 2008; Chiemeké & Ewwiekpaefe, 2011), e-banking (see, for example, AbuShanab & Pearson, 2007; Bankole, Bankole, & Brown, 2011; Foon & Fah, 2011), mobile communication and services (see, for example, Carlsson, Carlsson, Hyvonen, Puhakainen, & Walden, 2006; Wu, Tao, & YangJ, 2007; Koivumäki, Ristola, & Kesti, 2008) and robotic technology (see, for example, Weiss et al., 2008; BenMessaoud, Kharrazi, & MacDorman, 2011).

Moreover, the UTAUT is a popular model with studies around the world, including both developed (see, for example, Carter & Bélanger, 2005; Nanayakkara, 2007; Nistor, Wagner, Istvanffy, & Dragota, 2010) and developing countries (see, for example, Gupta et al., 2008; Kijisanayotin et al., 2009; Maldonado et al., 2011). The main reasons for this as stated in studies utilising UTAUT, are that the model provides a validated and comprehensive framework that integrates eight previous prominent models (Hennington & Janz, 2007, p. 61; AlAwadhi & Morris, 2008a, pp. 3-4; Koivumäki et al., 2008, p. 68) and that it explains a high percentage of variance in usage intention (Marchewka et al., 2007, p. 95; Wills et al., 2008, p. 397; Wu & Bauer, 2010, p. 200; BenMessaoud et al., 2011, p. 3). In addition, the model is also able to be extended or modified to suit the local environment. For example, Min et al. (2008), who studied mobile commerce user acceptance in China, extended the

UTAUT model to include Chinese culture to better explain their results. Maldonado et al. (2011) made the addition of e-learning motivational factors to suit their study on e-learning system adoption. In sum, the UTAUT model is a prominent model that can be adapted for the current study.

The present study adapted the seven groups of significant constructs from eight theories in Venkatesh et al. (2003) to suit the Malaysian e-filing environment. The constructs were chosen because they represented the eight major theories in acceptance of technology literature. However, the UTAUT model itself was not utilised because this study was exploratory in nature as it sought to determine the factors affecting the actual usage behaviour of e-filing, not the behavioural intention as in the UTAUT model. Rather, as mentioned above, the present study follows the work by Compeau and Higgins (1995) which focused on actual behaviour. A summary of the seven constructs tested in the UTAUT model, definitions and constructs of other models and theories related to the tested constructs used by other researchers of technology acceptance is presented in Table 2.4.

Table 2.4: Seven Variables in Estimating UTAUT

Variable	Definition	Similar Variables in Other Theories	Other Theories
<i>Performance Expectancy</i>	The degree to which an individual believes that using the system will help him or her to attain gains in job performance.	1. Perceived usefulness 2. Extrinsic motivation 3. Job-fit 4. Relative advantage 5. Outcome expectations	1. TAM/C-TAM-TPB 2. MM 3. MPCU 4. DoI 5. SCT
<i>Effort Expectancy</i>	The degree of ease associated with the use of the system.	1. Perceived ease of use 2. Complexity 3. Ease of use	1. TAM 2. MPCU 3. IDT
<i>Social Influence</i>	The degree to which an individual perceives that important others believe he or she should use the new system (social norm, subjective norm, social factors).	1. Subjective norm 2. Social factors 3. Image	1. TRA/TPB/TAM/C-TAM-TPB 2. MPCU 3. DoI
<i>Facilitating Conditions</i>	The degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system. Facilitating conditions were modelled as a direct antecedent of usage, not intention.	1. Perceived behavioural control 2. Facilitating conditions 3. Compatibility	1. TPB 2. MPCU 3. DoI
<i>Attitude towards Using Technology</i>	An individual's overall affective reaction to using a system.	1. Attitude toward behaviour 2. Intrinsic motivation 3. Affect toward use 4. Affect	1. TRA/TPB 2. MM 3. MPCU 4. SCT
<i>Self-Efficacy</i>	Judgement of one's ability to use a technology to accomplish a particular job or task.	} These two variables were not included as direct determinants in the final UTAUT model.	1. SCT
<i>Anxiety</i>	Evoking anxious or emotional reactions when it comes to performing a behaviour (for example using a computer).		1. SCT

Note: TAM – Technology Acceptance Model
TRA – Theory of Reasoned Action
TPB – Theory of Planned Behaviour
C-TAM-TPB – Combined TAM-TPB

SCT – Social Cognitive Theory
MM – Motivational Model
MPCU – Model of PC Utilisation
DoI – Diffusion of Innovation Theory

Source: Adapted from Venkatesh et al. (2003, pp. 448-460).

2.5.2 E-Filing Start-Up and Recurring Compliance Costs

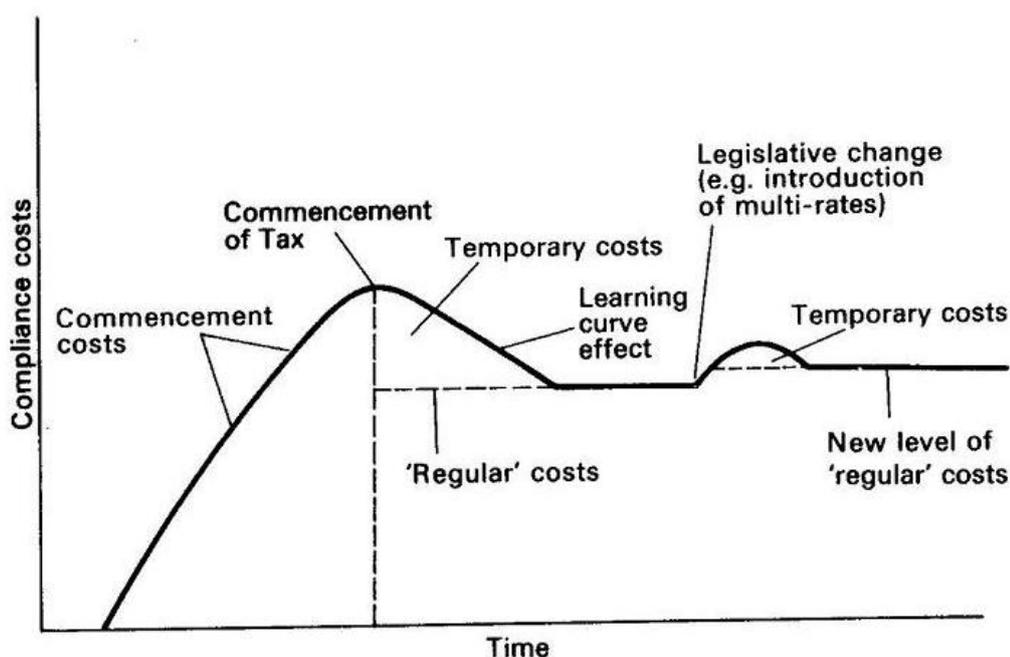
According to Sandford et al. (1989, pp. 16-18), introduction of a new tax system or a major change in a tax system will incur commencement costs or start-up costs. The commencement costs comprise the investment costs which include a new computer

system and training costs. The commencement costs for the tax e-filing system are heavily borne by the tax administrator in terms of technological hardware, software and IT expertise. During the first few years of operation, the cost savings may be negative or low for tax administrators because they have to continue with manual systems (Edwards-Dowe, 2008, p. 10) and there is a necessity to write-off the commencement costs (Sandford et al., 1989, p. 18).

Taxpayers may also incur start-up costs such as acquiring a PIN, computer and internet peripherals costs, as well as time learning the new system. An example of research on tax start-up costs is the work by Rametse and Pope (2002, 2005) who estimated the start-up costs for the introduction of the Goods and Services Tax in Australia. However, to the author's knowledge, there is no study that investigates the taxpayer's start-up costs in a tax e-filing system. Nonetheless, estimations on the recurrent costs of compliance related to e-filing have been documented especially in the USA, Canada and Slovenia. The present study also focuses on the recurrent compliance costs. A comparison between compliance costs for experienced taxpayers and for new taxpayers is also made.

Recurrent costs are the continuing costs of running a tax system (Sandford et al., 1989, p. 16). For PIT payers, recurrent costs are the normal compliance costs to be incurred in order to fulfil the income tax requirements. Sandford et al. (1989, p. 17) suggest a model of changes in administrative and compliance costs for a new tax as shown in Figure 2.3. This model is also applicable to an e-filing system for taxation.

Figure 2.3: Model of Changes in Administrative and Compliance Costs



Source: Sandford et al. (1989, p. 17).

2.5.3 E-Filing and Tax Preparers

Understanding the tax preparers' views of the benefits of e-filing is vital to boost the take-up rate particularly when the majority of taxpayers depend on tax preparer services. In ensuring the successful implementation of e-filing in the USA, the IRS worked closely with tax professionals and tax preparation software providers before launching the system (Fletcher, 2002, p. 1). The success of e-filing take-up rates in Australia is also believed to be due to tax agent assistance.²¹ According to a report by the OECD, 77 percent of PIT payers in Australia used a tax agent service in 2004 (Organisation for Economic Co-operation and Economic Development, 2005, p. 59) and 97 percent of tax agents utilised the e-filing system to lodge their customers returns (Turner & Apelt, 2004, p. 241). This makes their e-filing system a success through the collaboration between the tax authority and tax agents.

However, in Malaysia, the use of paid preparers or tax agents is mainly by those who are self-employed and is very limited. The majority of PIT payers in Malaysia normally do not hire any tax agent services (Sapiei & Abdullah, 2008, p. 227).

²¹ This is the author's opinion based on statistics provided by the OECD on percentage of tax professional assistance of more than 70 percent for PIT payers and heavy used of tax agent's portal provided by the ATO (Organisation for Economic Co-operation and Economic Development, 2005, pp. 10-11; Australian Taxation Office, 2010, p. 190).

Therefore, it is appropriate to investigate the determinants of e-filing acceptance regarding the taxpayers themselves.

2.5.4 Pre-Filled Return System

Part of an e-filing system is normally a pre-filled return system. A pre-filled return is defined as “an original tax return prepared by the revenue authority for the taxpayer, using information obtained from third-party sources and other sources (for example records of the revenue body)” (Highfield, 2006, p. 332) (original emphasis). The pre-filled return system utilises information and communication technology to pre-populate information in income tax returns for PIT payers. The main reasons for implementing the system are to relieve PIT payers of the burden of filing the annual income tax form (Organisation for Economic Co-operation and Economic Development, 2006, p. 7) and for procedural tax simplicity (Evans & Tran-Nam, 2010, p. 259).

This advanced technology is widely used especially in Nordic countries that require an annual lodgment of an income tax return by PIT payers. The system was pioneered in Denmark in 1988, followed by other Nordic countries such as Sweden in 1995 and Norway in 1998 (Organisation for Economic Co-operation and Economic Development, 2008b, p. 24). The system then became well accepted in other parts of the world, including Australia in the 2004/05 tax year as part of their e-filing system (Evans & Tran-Nam, 2010, p. 261), California in 2004 (Bankman, 2005, p. 1432), Singapore in 2005 (Inland Revenue Authority of Singapore, 2005) and Slovenia in 2006 (Klun, 2009, p. 221).

The pre-filled return system benefits both taxpayers and the tax administrator. The benefits for the former include reduction of compliance time and costs, increased certainty and faster refunds for overpaid tax (Organisation for Economic Co-operation and Economic Development, 2006, p. 13). Davidson (2009, p. 3) argues that the pre-filled return system reduces the compliance burden which includes record-keeping costs, time taken to fill in the tax return and the cost of employing a paid preparer to do so. Leigh (2006, p. 7) states that, by eliminating those requirements, Australians would have an additional public holiday (based on the estimated compliance time made by Evans et al. (1997, p. 20)). In Slovenia,

compliance costs were estimated to be around 73 percent lower under a pre-filled return system (Klun, 2009, p. 230), although this seems rather a large reduction and the findings may be questionable. That author also indicated that the implementation of the pre-filled return system in Slovenia started with major reforms in tax law such as reduced tax brackets and unstandardised tax deductions.

Among the benefits to the revenue body include faster processing of a taxpayer's return, quicker refunds of overpaid tax to a taxpayer and reduced administrative burden, which will ultimately result in an enhanced image for the revenue body (Highfield, 2006, p. 338). These benefits reflect the cost savings in terms of time and human resources for the tax administrator. In addition, the income that is subject to third-party reporting as in the pre-filling system will reduce the rate of tax evasion (Kleven, Knudsen, Kreiner, Pedersen, & Saez, 2010, p. 3). Therefore, Abdul (2001, p. 10) suggests that the involvement of employers (as the third party) in reporting income and deductions is necessary to reduce tax evasion. Interestingly, the psychological effect on taxpayers could be significant as taxpayers may be surprised to see how much information the revenue body records about him/her (Evans & Tran-Nam, 2011, p. 17).

Despite all the benefits, the pre-filled return system has been criticised. Young (2010, p. A.8) argues that the tax collector should not act as the tax preparer at the same time because this situation can create a conflict of interest. Young particularly referred to the Pay-As-You-Earn (PAYE) return-free system in the UK where 15 percent of errors found are in favour of the government. It is also contended that a system, similar to PAYE, will create the problem of imbalanced compliance costs for large and small firms as the third parties to supply the information to the tax authority (All-Party Parliamentary Taxation Group, 2009, pp. 4-5). Similar to findings in relation to income tax compliance costs, this disproportionate burden on large and small firms is due to the economics of scale effect. There are fixed costs that the small firms would incur and the proportion of the fixed costs to their income would be higher than for the large firms. This burden could be unfair as small firms typically lack resources.

Slemrod (2006, pp. 10-11) argues that the pre-filled return system is not private as taxpayers let their employer know their personal matters (for example, marital status

and the number of dependants). He has also argued that the technological approach may erode taxpayer understanding of taxation matters (Slemrod, 2004, p. 45).

The pre-filled return system is a timely topic to explore in Malaysia as it is still very new. As at 2010, the IRBM has tested the pre-filing system among their staff and the Petronas Bhd staff but the majority of PIT payers are unaware of the system.²² As the pre-filing system offers many benefits to taxpayers and the tax administrator as discussed above, the present study also investigated awareness of the pre-filled return system in order to explore the understanding of Malaysian taxpayers about the issues of such a system.

2.6 Chapter Summary

This chapter presented the background of the Malaysian PIT system, and provided an overview of the definitions and contexts of tax e-filing, both internationally and in its development in Malaysia. A review of previous studies was reported, and the major theories and theoretical issues regarding the acceptance of the tax e-filing system were discussed.

The tax e-filing in Malaysia integrates the filling of electronic return and the submission of tax form data to the IRBM through an internet connection. It was officially introduced in 2006 to facilitate taxpayers' preparation of their PIT returns under the SAS. Every year, the system is improved by the IRBM but the number of e-file users as at 2010 was at an unsatisfactory level, at around 30 percent of total PIT payers for 2010 (YA 2009). Therefore, one of the main objectives of this study was to investigate the factors affecting the decision by PIT payers in Malaysia to use or not to use the tax e-filing system.

The majority of previous studies indicate that *PU* and *PEOU* are the two main factors that affect the acceptance of the tax e-filing system around the world in countries such as the USA, Taiwan, Turkey and India. However, findings on other factors such as *anxiety*, *external influences* or *subjective norms*, *security* and *trust* are mixed, and are only found to be significant determinants in a few studies. These inconclusive results indicate that the factors need to be re-investigated in Malaysian

²² This information was supplied by an IRBM's official on 20 May 2010.

terms. In terms of methodology, most previous studies utilise behavioural intention to draw their conclusion about the significant determinants of tax e-filing acceptance. This study investigated the factors through actual usage behaviour.

Among the theories popularly employed in previous studies are the TPB, TAM, UTAUT or a mix of these approaches or integration of other factors. The UTAUT model is the integration of eight major theories in technology acceptance, which are TRA, TAM, MM, TPB, C-TAM-TPB, MPCU, DoI and SCT. The variables or constructs included in the development of UTAUT are more prominent than any single theory in technology acceptance research. Therefore, the present study adapted the seven constructs in the development of UTAUT to test them in the Malaysian situation (not the final four UTAUT constructs). Other issues related to tax e-filing, such as the costs related to e-filing, the role of the tax preparer and the pre-filled return system, were also investigated. The next chapter presents the concept and definition of compliance costs, discusses a review of the international and domestic literature, and provides an overview of the theories and issues on tax compliance costs, particularly those related to the PIT system.

Chapter 3

Review of Literature and Theory: Compliance Costs

3.1 Introduction

Reflecting upon the paucity of published research with regard to the compliance costs of the PIT system in developing countries, this thesis extends prior studies by examining the effect of e-filing on compliance costs. This chapter presents a review of the literature and theory related to tax compliance costs and is divided into five sections. After this introduction, the concept and definition of compliance costs for PIT payers is presented. This is followed by a review of the literature on PIT compliance costs, around the world and from Malaysia.

It should be noted that literature reviews regarding taxpayers' compliance costs from professional bodies or Non-Governmental Organisations (NGO) or supra-national bodies were not found. Nonetheless, this thesis has included views from some academic authors who actually represented the professional or NGO or supra-national bodies. This included, for example, Prof Vaillancourt and Athur D. Little Inc., who undertook commissioner's work for the Canadian Tax Foundation and the IRS, USA respectively.

Theoretical issues related to compliance costs are discussed in section four, which include components and classification of PIT compliance costs, valuation of time, offsets and reporting compliance costs. Finally, a summary is presented at the end of the chapter.

3.2 Concept and Definition

Estimates of compliance costs are imperative in order to measure the economy of collection as proposed by Adam Smith (1776). Slemrod (2004, p. 44) argues that compliance costs are the most informative measure of tax complexity compared to other ways such as cutting the number of pages or words in the tax code or forms. Increased complexity in the tax system has been recognised as a factor that may lead to non-compliance and impede good decision-making (Australian Treasury, 2008, p. 306). In addition, compliance costs affect voluntary compliance behaviour (Jenkins

& Forlemu, 1993, pp. 1-2). Therefore, to be competitive in a global market, governments must have a concern about the level of compliance costs and an objective to reduce them.

Countries such as Australia, the UK and New Zealand have already adopted compliance costs assessment or tax impact statements as a regular component of policy-making (Sandford, 1995b; Evans & Walpole, 1997) in order to ensure that tax compliance costs are minimal. Compliance costs have been described as the “invisible tax” by the Chairman of the USA Taxation Committee (in Haig, 1935), as a “disguised tax burden” by Strümpel (1966), and as the “hidden costs” of taxation by Sandford (1973).

The imposition of taxes by government in order to finance public services should be achieved in the least costly manner possible either on the part of the administrator or on the taxpayers’ side (Vaillancourt & Clemens, 2008. p. 55). This is because the costs can reduce the resources available to the citizen and distort their behaviour. There is a famous quotation on taxation from Jean-Baptiste Colbert (1619 –1683), the Finance Minister of France from 1665 to 1683 under the rule of King Louis XIV, which says that “The art of taxation consists in so plucking the goose as to obtain the largest possible amount of feathers with the smallest possible amount of hissing”. In other words, the amount of hissing includes the tax itself and the compliance costs. The recognition of compliance costs issues by Smith (1776) may be the first properly documented material.

Smith (1776, Book V, Chapter II, Part II, 'Of Taxes') laid down four maxims of a good tax system: equality (equity), certainty, convenience of payment, and economy of collection. On the economy of collection, Smith (1776, pp. 645-646) wrote that:

“Every tax ought to be so contrived as both to take out and to keep out of the pockets of the people as little as possible over and above what it brings into the public treasury of the state...By subjecting the people to the frequent visits and the odious examination of the tax-gatherers, it may expose them to much unnecessary trouble, vexation, and oppression; and though vaxation is not, strictly speaking, expense, it is certainly equivalent to the expense at which every man would be

willing to redeem himself from it.”

The statements highlight two key points, namely, (1) the cost of collection should be “as little as possible”, and that (2) it should be free of “unnecessary trouble, vexation, and oppression” (Haig, 1935, p. 324). The first point relates to the quantitative measure of compliance costs, while the second is concerned with psychological costs.

In relation to quantifiable compliance costs, Sandford (1973, p. 8) defined them as the costs “...arising from the requirements of the tax system, which are incurred by the taxpayer or by some third party such as an employer, over and above actual tax payments”. This definition is widely used in major compliance cost studies although researchers agree that unquantifiable psychological costs are also part of the compliance costs (see, for example, Slemrod & Sorum, 1984; Pope et al., 1990; Allers, 1994; Evans et al., 1997). Broadening the definition of quantifiable costs, Blumenthal and Slemrod (1992, p. 185) defined compliance costs for PIT payers as “...the value of the time spent on task related to filing individual income tax returns as well as to any expenditures on goods or services for that same purpose”.

Although the psychological costs are less tangible or quantifiable, an attempt to measure psychological costs was carried out by Woellner, Coleman, McKerchar, Walpole, and Zetler (2001). Their objective was to estimate the psychological costs for a new drafting style of the *Income Tax Assessment Act 1997* (ITAA 1997) in Australia. They utilised three methods of data collection: read-aloud protocol with videotaping, focus groups, and case study. However, they discovered that their data collection methods needed to be improved before any attempt could be made to distinguish the costs of complying with the former tax legislation (ITAA 1936) and the ITAA 1997. They did not derive any monetary estimate.

Another study by Diaz and Delgado (1995) evaluated the Spanish taxpayers’ psychological costs using four indicators: taxpayers’ perceptions towards time dedicated to compliance, items or aspects most disliked by taxpayers, the state of mind upon finishing the complete process, and the conversational time occupied by the topic of filing tax returns. However, they also did not attempt to estimate these

psychological costs in monetary terms.²³

3.3 Previous Studies

3.3.1 United States

Field research in this area was started by Haig (1935) who studied the taxation compliance costs of corporations in the USA. The first attempt to measure the compliance costs of PIT was made by Wicks (1965), who focused on Montana residents. This was followed by Wicks (1966) and then Wicks and Killwort (1967) who widened the scope of study to include administrative costs and all significant taxes in Montana. Other research on the compliance costs of PIT carried out in the USA include studies by Slemrod and Sorum (1984) and Blumenthal and Slemrod (1992) on the federal income tax base of Minnesota households.

Using the sample from Minnesota households, Slemrod and Sorum (1984) estimated that the average compliance time spent was 26.7 hours and the average money costs were USD61. By reweighting the data to characterise the USA PIT population, their estimate decreased to 21.7 hours and USD275 of money costs or total resource costs of USD26.7 billion. This estimate accounts for more than seven percent of total federal and state income tax revenue. They found that record-keeping was the activity with the highest time spent and that the most prominent characteristics affecting compliance costs were the level of income and employment status with the self-employed spending the highest compliance time and money (Slemrod & Sorum, 1984, p. 472). In addition, they found that as a proportion of income, compliance costs were regressive. However, their findings were criticised because the sample from only one state in the USA (Minnesota), was not representative of the whole taxpaying population in the USA.

Blumenthal and Slemrod (1992) repeated the survey by Slemrod and Sorum (1984) to examine the effect of the *Tax Reform Act 1986* (TRA 86) on Minnesota households in 1989 with the addition of one time category, namely, the time spent arranging financial affairs to minimise taxes. They found that the cumulative effect of the reform resulted in increased compliance costs. The average time spent was

²³ Most compliance cost studies ignore the psychological costs.

reported at 27.4 hours and the average monetary cost was USD66. Other results were similar to those reported by Slemrod and Sorum (1984). Among them are that the record-keeping was the highest time consumed activity, the compliance costs were positively related to income, the self-employed incurred the highest compliance costs and compliance costs were regressive.

However, these early studies have been subjected to criticism, particularly in regard to methodological aspects. For example, their samples were very small and non-representative, and the items included in the estimation were not properly defined (Allers, 1994, p. 8). Haig (1935) himself conceded that his sample was small and was not truly representative of the general situation. The studies by Wicks (1965, 1966), Wick and Killwort (1967), Slemrod and Sorum (1984) and Blumenthal and Slemrod (1992) focused on only one state (Montana or Minnesota).

Another study by Arthur D. Little Inc. (1988) for the IRS made an important contribution. This was a large survey that utilised mail questionnaires sent to 6,200 individuals and a diary study of time spent in 1983 by 750 individuals. The main objective was to develop a methodology for estimating the paperwork burden imposed by the federal tax system. The study emphasised the measurement of the burden in hours spent for the federal tax system according to the types of forms, instead of hours and costs as in previous literature. This methodology was then utilised by the IRS in reporting annual estimates of compliance costs, which were referred to as the “paperwork burden” in the IRS instruction booklets for each type of tax form (Saxton, 2005, p. 3).

A later study was carried out by Guyton et al. (2003) with the support of the IRS, thus recognising that the methodology employed since the 1980s needed improvement. According to Guyton et al. (2003, p. 673), the estimates, which were time estimates by the type of return forms, were out-of-date and unable to simulate a wider range of policy changes. A new model called the Individual Taxpayer Burden Model (ITBM) was developed jointly by IBM and the IRS to replace the old model. The new model used a microsimulation model with computer programmes that simulated the behaviour agents. Data describing taxpayer demographics, filing outcomes and other key characteristics was input into the model to be processed. The outcome was the prediction of time and out-of-pocket expense based on the

characteristics.

Using this new model, Guyton et al. (2003, pp. 683-685) reported the estimates for federal PIT compliance costs according to taxpayers' characteristics and activities such as the type of preparation method and submission method instead of by form type. The ITBM methodology replaced the old methodology in 2006 and is now well accepted by the IRS. The growing usage of electronic filing helped to justify this new approach (Moody, Warcholik, & Hodge, 2005, p. 16) because the majority of taxpayers who utilised tax software or a paid preparer no longer interacted directly with tax forms (Guyton et al., 2003, p. 681) but instead with the system. Moreover, it can provide better simulation of changes in tax policy.

Guyton et al. (2003) and Guyton, Korobow, Lee and Toder (2005) are among the latest researchers to examine the effect of IT on tax compliance costs. This is a new development in the study of compliance costs and is also the particular interest of the present study. Surprisingly, the findings in Guyton et al. (2003, p. 683; 2005, p. 441) suggest that compliance time for returns prepared using software (40.1 hours) was higher than the time using manual preparation (18.2 hours). This highlights either that the use of tax software increased the compliance costs or that many self-employed taxpayers with more complex returns utilised tax software. Thus, the software could not reduce the compliance costs for complex tax affairs.

3.3.2 Canada

In Canada, studies on compliance costs flourished in the 1980s although a compliance costs study had been undertaken in the 1960s by Bryden (1961) for business taxes, as cited by Allers (1994, p. 9 & p. 242). The major compliance cost studies on PIT in Canada were conducted by Vaillancourt (1989) for the 1986 tax year, Vaillancourt and Clemens (2008) for the 2004 and 2005 tax year and Vaillancourt (2010) for the 2007 tax year. Vaillancourt estimated that compliance costs in 1986 for PIT represented 3.0 percent of PIT revenue or between CAD5.0 billion and CAD5.5 billion. Meanwhile, Vaillancourt and Clemens reported that compliance costs in 2004 and 2005 were between 1.7 percent and 3.3 percent of PIT revenue or between CAD2.9 billion and CAD3.9 billion; lower than the previous estimate. This is probably because Vaillancourt and Clemens carefully distinguished

between the percentage of taxpayers who used e-filing or standard paper filing and the percentage of those who used a tax preparer or discounter.

The latest study by Vaillancourt (2010) indicated that the compliance costs level in 2007 was similar to the levels found in 2004 and 2005 in the previous study by Vaillancourt and Clemens (2008). Major findings by both studies included that men incurred higher compliance costs than women, compliance costs increased with the level of education, and time costs decreased with years of experience. Compliance costs as a proportion of income decreased with the increase of level of income and were highest for those using paid preparers and for those generating self-employed income. Many of the findings were similar to the findings in studies in the USA such as the study by Blumenthal and Slemrod (1992).

3.3.3 United Kingdom and Europe

In the UK, compliance costs research was started by Sandford (1973) who focused on personal taxpayers. The study covered a large number of responses (2,910). Among the important findings were that the self-employed were the group with the highest compliance costs and that the compliance costs were inequitable and regressive. Throughout the 1980s, Sandford continued to study compliance costs with his colleagues in relation to many other taxes, different types of taxpayers and using various methods of data collection such as an interview survey and a study of clients' records (Sandford et al., 1989, pp. 229-230). One main feature of PIT in the UK is that most PIT payers are subject to an exact withholding tax system, known as PAYE. Under this system, most salaried taxpayers do not need to file an income tax return annually. This is the reason for the finding in Sandford et al. (1989, p. 67) which indicates that about 40 percent of taxpayers and 83 percent of taxpayers' wives spent no time at all on income tax compliance in 1983/84.

Allers (1994) conducted a comprehensive study of tax administrative and compliance costs in the Netherlands for the 1990 tax year. For the private household compliance costs, a sampling frame of 13,129 was targeted and the response rate was 44 percent. The study utilised a survey questionnaire technique through visits to the respondents' home and mail for those respondents who were not found at home after three attempts. The study found that on average a taxpayer spent three hours filing his or

her tax return with average monetary costs of Gld77. However, about half of the respondents did not incur any monetary costs. Similar to other studies, Allers (1994, p. 150) also found that compliance time increased with the education level and household income level. Allers (1994, p. 151) also found that compliance costs were high for the self-employed.

Other compliance costs studies on PIT in European countries include Diaz and Delgado (1995) in Spain and Malmer (1995) in Sweden. Diaz and Delgado estimated the average compliance costs for Spanish PIT payers in 1991 was about 3.3 percent of tax revenue, with the time and money costs being 73 percent and 27 percent, respectively. They also found that record-keeping was the activity consuming the highest time of taxpayers and the majority of taxpayers required external help to complete their filing process (Diaz & Delgado, 1995, p. 216 & p. 222). Malmer investigated the effect of Swedish tax reform in 1990/91 and found that tax compliance costs were reduced. It should be noted that Spain and Sweden moved to a pre-filled return system for PIT payers in 2003 and 1995, respectively (Organisation for Economic Co-operation and Economic Development, 2008b, p. 24).

A study on compliance costs for PIT was carried out by Klun (2004, 2009) in Slovenia. Klun studied the effect of tax reform, e-filing and a fully pre-filled return system on PIT compliance costs, showing a reduced trend. However, the author emphasised that the reduction in compliance costs was not mainly due to the technological effect but rather due to the reform in tax codes (Klun, 2009, p. 230). The findings on compliance costs in European countries indicate the effect of tax reform, including the use of the e-filing system.

3.3.4 Australia and South-East Asia

The most prominent compliance costs study in Australia was carried out by Pope (1993a). The study estimated compliance costs for PIT, companies' income tax, and employment-related taxation (employers' PAYG, fringe benefits tax and prescribed payments system and whole sales tax). Over three decades, Pope published reports on various topics related to compliance costs (see, for example, Pope, Fayle, & Chen, 1991; Pope, 1992, 1993b; Pope, Fayle, & Chen, 1993a, 1993b, 1994; Pope, 2001, 2002, 2003, 2005, 2008; Pope & Abdul-Jabbar, 2008). Pope also discussed related

issues in compliance costs such as issues on PIT payers (Pope, 1989), GST for small business and start-up costs (Pope, 2001; Rametse & Pope, 2002, 2005), and the valuation of time in depth (Pope, 1995, pp. 114-118).

On PIT compliance costs, Pope et al. (1990, p. 23) found that on average, Australians spent 10.7 hours completing PIT requirements. Salaried taxpayers spent only 5.6 hours on average compared with 33.8 hours for business taxpayers. Overall, the compliance costs for PIT represented 10.8 percent of PIT revenue for 1986/87. The time costs represented 65 percent of the total costs and the remainder was for money costs. The higher proportion of time costs as compared to money costs was also found in other compliance costs for PIT such as by Slemrod and Sorum (1984, p. 467) in the USA and Diaz and Delgado (1995, p. 222) in Spain where lodging annual tax returns is a requirement for all PIT payers.

Another notable study in Australia was by Evans et al. (1997) for the tax year 1994/95. Evans and colleagues received support from the ATO to undertake the research. In relation to PIT compliance costs, they utilised a somewhat different method to Pope et al. (1990) by including the cash flow benefits/costs arising to PIT payers and estimated that the average time spent by Australians was 8.5 hours, with an overall compliance costs estimate of 4.0 percent of net tax revenue. The estimates were lower than those made by Pope et al. (1990), and were made shortly after the SAS had been introduced.

According to Pope (1993b), there are six phases in the development of the compliance costs of taxation as a policy area. Phase one is the period in which the compliance costs are unrecognised and hidden; phase two is called “professional, qualitative recognition” whereby tax practitioners and academics recognise the compliance costs being imposed on taxpayers and speak and write publicly on the subject. The third phase is the “estimation and evaluation” phase whereby compliance costs are estimated and quantified in monetary terms from taxpayer data. The fourth phase is the “policy recognition” phase followed by the “effective policy measure” phase and the final phase is the continuous monitoring of compliance costs, as well as the administrative costs.

Australia had reached the fourth phase of compliance costs by the early 1990s;

namely, the phase of policy recognition (Pope, 1993a, p. 36). To the author's knowledge, at the time of writing, there are no updated compliance cost estimates for PIT in Australia since the estimates made by Evans et al. (1997). Recently, the ATO appointed Newspoll to conduct a compliance costs survey of Australian taxpayers using four recent tax measures, specifically: the flood levy, the Research and Development (R&D) tax incentive, car Fringe Benefits Tax (FBT) and the business tax break (Newspoll, 2012). The survey identified the groups affected and studied the impact of compliance costs upon implementation, as well as recurrent compliance costs. However, the survey focused on micro and SME businesses rather than individual taxpayers.

The current trend in compliance cost studies in Australia, for PIT particularly, is active participation by academics in identifying the factors that influence the compliance costs and the means for PIT to be simplified in order to reduce compliance costs (see, for example, Drum, 2004; Evans, 2004; Drum, 2005; Oliver & Bartley, 2005; Evans & Drum, 2006; Highfield, 2006; McKerchar, Meyer, & Karlinsky, 2006; Pope, 2008; Highfield, 2009; Evans & Tran-Nam, 2010).

To the author's knowledge, there is no study on compliance costs related to PIT in New Zealand. However, there is a study on compliance costs related to business in New Zealand by Sandford and Hasseldine (1992). A possible reason for this situation might be due to the implementation of a no-return system for the majority of PIT payers in New Zealand which exempts many PIT payers from filing an annual tax return (Evans, 2004, pp. 168-169). The burden of compliance costs for business-related and employer-related taxes is therefore more relevant in New Zealand.²⁴

The focus of compliance costs studies in the South-East Asian region is more on company taxes. For example, in Singapore, a series of compliance costs studies were carried out during the 1990s that focused on corporate income tax (see Ariff, Loh, & Talib, 1995; Ariff, Ismail, & Loh, 1997). Meanwhile, a compilation of compliance costs studies for the Asia-Pacific region by Ariff and Pope (2002) also consisted of corporate compliance costs studies, including costs for SMEs, and none of them were

²⁴ A review of compliance costs studies by Evans (2003) also does not indicate any compliance costs study on PIT in New Zealand.

related to PIT compliance costs. Thus, it is timely to study the compliance costs of PIT in Malaysia, an important country in South-East Asia and a member of ASEAN group. There is a study on compliance costs of PIT in India (Das-Gupta, 2004). However, due to extremely high compliance costs which include high bribery costs in the compliance costs estimation, it is not a good comparison to Malaysia, although both countries are considered developing nations.

Many previous studies have compiled a comprehensive summary of compliance cost studies around the world for a variety of taxes and taxpayers. Summaries have been made by Sandford et al. (1989, pp. 224-230), Allers (1994, pp. 242-250) and Evans (2003, pp. 80-92). Due to the growing number of studies of tax compliance costs, the present study provides a summary of major international studies on PIT compliance costs only (see Appendix C).

3.3.5 Malaysia

In Malaysia, the first published study on tax compliance costs was by Loh, Ariff, Ismail, Shamsheer and Ali (1997) on listed companies. This was followed by a study of compliance costs for SMEs (Hanefah, Arif, & Kasipillai, 2001). A series of compliance costs studies on SMEs were later conducted by Abdul-Jabbar and Pope (2008a, 2008b) and Abdul-Jabbar (2009). At the time of writing, these are among only a small number of studies related to tax compliance costs in Malaysia.

The compliance costs of PIT payers in Malaysia were first recognised in an unpublished PhD thesis by Hanefah (1996), who investigated whether the compliance costs of self-employed PIT payers were different from the costs of other PIT payers. By employing structured personal interviews with 248 respondents and one-way Analysis of Variance (ANOVA), Hanefah (1996, pp. 190-191) found that the self-employed were the group with the highest compliance costs as compared to another five categories of employment status (executive, professional, technical, clerical and other). However, the study did not aim to estimate the total compliance costs.

Sapiei and Abdullah's (2008) research was the first published study to explore the compliance costs of personal taxpayers under the income tax system in Malaysia.

Sapiei and Abdullah discovered that the average time spent was about 70 hours per taxpayer with the highest time devoted to record-keeping. The highest monetary cost was for hiring a tax adviser. They also found that most of the taxpayers either used an unpaid tax adviser or undertook the assessment themselves. They argued that the implementation of an SAS increased the compliance costs for individual taxpayers. However, they also admitted that their sample was small (144 usable responses) and was only limited to the Klang Valley area. A full list of published tax compliance costs studies in Malaysia is presented in Table 3.1.

Table 3.1: Prior Malaysian Studies on Personal Income Tax Compliance Costs

Author (Year)	Year Review	Sample	Sample Size (Response Rate)	Data Collection Method	Findings
Hanefah (1996)	1995	Employed and self-employed taxpayers in Kuala Lumpur, Alor Setar and Kangar	248 (83%)	Structured personal interview	80% of respondents spent less than 5 hours for all three time spent activities (record-keeping, reading and researching about tax, and supplying information to a tax agent). Average fee to tax agents was RM250. Self-employed were the highest compliance costs group. 72% respondents prepared their own returns.
Sapiei and Abdullah (2008)	2007	PIT payers in Klang Valley	144 (29%)	Mail questionnaire	Average time spent 70.6 hours. Average monetary costs RM188. Highest time spent for record-keeping. Highest money spent for tax agent fees. 69% respondents prepared their own returns.

It can be concluded that the study of tax compliance costs in Malaysia is still at the stage of infancy and is probably only just being acknowledged by researchers. Alternatively, Malaysia is at the beginning of phase two, according to Pope's six phases in the development of the compliance costs of taxation as a policy area, as discussed earlier.²⁵ The few existing attempts to estimate compliance costs comprise research reports by academics. Thus, compliance costs in Malaysia are still not being recognised as an important issue by policy-makers and the tax administrator. In the IRBM annual reports, only the efficiency costs or administrative costs are reported

²⁵ See Section 3.3.4 for further explanation.

explicitly, and these have recently shown that the costs are reducing every year.²⁶ However, taxpayers' compliance costs remain hidden. Therefore, it is timely for the present study to investigate and report on the compliance costs for PIT payers in Malaysia, and the effect of e-filing on compliance costs, with the hope that it might shed some light on this hitherto largely neglected issue.

3.3.6 Major Findings of Previous Studies

The findings from compliance cost studies, particularly for PIT, indicate a similar pattern in certain aspects. According to Evans (2008, p. 457), three main findings have emerged from compliance costs studies. Firstly, compliance costs have been found to be high and significant for PIT regardless of whether the measurement is by absolute time or money or as a proportion of tax revenue yield or GDP. From the review of previous studies above, it can be seen that although e-filing and the use of IT have enhanced the way people file tax returns, the compliance costs remain high in the case of the USA (Guyton et al., 2003). The compliance cost as a percentage of tax revenue yield is always high (between four to 10 percent for developed countries) and higher than the administrative costs (which are normally around or even below one percent).

Secondly, compliance costs have been found to be regressive. As a proportion of income, compliance costs were higher for low income groups and lower for higher income groups. The reason for this disproportionate severity on low incomes has been identified as diseconomies of scale as there were relatively fixed compliance costs to be borne by a taxpayer (Allers, 1994, p. 33; Evans, 2008, p. 458). Thirdly, it has been found that compliance costs are not reducing over time, despite attempts by many governments to reduce the burden on taxpayers. This is shown in early work by Blumenthal and Slemrod (1992) and later by Guyton et al. (2003) who reported the compliance costs in manual and electronic filing methods for PIT payers in the USA. A recent study by Vaillancourt (2010) indicated the continued phenomenon of disproportionate compliance costs among PIT payers in Canada. To the author's knowledge, there are no recently published studies on PIT compliance costs in Australia or the UK.

²⁶ For example, the efficiency costs for 2007, 2008 and 2009 are reported to be RM1.19, RM1.17 and RM1.04, respectively, for every RM100 tax revenue (Inland Revenue Board of Malaysia, 2010a).

Factors that contribute to high compliance costs include the design of the tax itself and legislative change. According to Allers (1994, p. 33), the complexity will increase if there is a high degree of uncertainty in the design of the tax. However, Allers (1994) also argues that high complexity may also reduce compliance costs when a taxpayer opts for non-compliance because of the complexity. On the other hand, legislative change may result in increased compliance costs but the effect may be temporary. As depicted by Sandford et al. (1989, p. 17) in a model of the pattern of costs,²⁷ legislative change will result in temporary costs that then become recurrent compliance costs after a certain period, probably at a lower level. In this context, the present study investigates whether the tax e-filing system has a significant impact on reducing the compliance costs. The use of online tools or electronic reporting is also suggested by the European Commission and the UK to reduce administrative burdens or specifically taxpayers' compliance (Organisation for Economic Co-operation and Economic Development, 2008a, pp. 21-22)

3.4 Theoretical Issues

3.4.1 Components of Tax Compliance Costs

The quantifiable items for PIT compliance costs consist of money and time costs. Sandford (1973, p. 9) explains that the monetary costs include primarily the professional advisers' fees, miscellaneous costs comprised of postage costs, telephone bills, travelling expenses and the purchase of taxation materials to help payers complete the return, and litigation costs. This classification by Sandford (1973) is widely accepted by compliance costs researchers (see, for example, Slemrod & Sorum, 1984; Pope et al., 1990; Blumenthal & Slemrod, 1992; Evans et al., 1997).

The role of information technology was not relevant for PIT payers when Sandford identified the components of costs in 1973, but now it is important. In a recent study in Canada, Vaillancourt (2010, p. 7) asked questions such as "How much did you pay for this software that you purchased and installed on your computer?". This question was classified as IT expenditure. For the present study, in addition to fees to a tax

²⁷ Refer to Figure 2.3 in Section 2.5.2, Chapter 2.

professional as a category of monetary costs, other miscellaneous expenses were divided into IT and non-IT expenditure in order to measure the effect of the e-filing system on compliance costs more accurately. However, litigation costs were not included as they were assumed to be not relevant to the e-filing system.

Time costs are indirect monetary costs. These costs include time for completing tax returns, collecting and filling in necessary data, acquiring tax knowledge, consulting with a tax professional, corresponding with the tax authorities or with any paid/unpaid adviser, and travelling to the office of the tax professional or the tax authority (Sandford, 1973, p. 9). Blumenthal and Slemrod (1992, p. 185) included in their estimate of PIT compliance costs the time spent reading the instructions and deciding which form to use, gathering and maintaining records of income sources and records for deductions, and time for researching the income tax literature in order to try and identify tax-saving provisions from which the taxpayer might benefit. They also included time spent with a tax professional and time for tax planning in their estimation. However, Slemrod and Sorum (1984) and Blumenthal and Slemrod (1992) excluded litigation costs in their estimation of PIT compliance costs for the USA.

Pope (1993a, pp. 305-308) did not itemise the time spent according to tax activities. Instead, he asked the respondents to estimate the overall time based on the respondents' judgement of their compliance time except for time spent on tax audits and appeals as there were separate questions on these matters. However, due to "the absence of memory-jolting enumeration" such an approach may result in an incomplete list (Vaillancourt, 1989, p. 22). As this study's objective was to compare the compliance costs between e-filing and manual filing, it was better to list specific costs or time questions for ease of comparison. This follows the method used by Vaillancourt (1989). This method is useful in order not to miss a single item for time costs as imagined by the taxpayers since the costs included would vary among them. This approach is also a detailed reminder of the various types of costs that can be incurred by taxpayers. Therefore, an approach that identifies ten time cost activities and three monetary costs was adopted for the present study.²⁸

²⁸ Refer to Table 4.3 in Section 4.5.5, Chapter 4 for details on items measuring tax compliance time costs.

3.4.2 Classification of Tax Compliance Costs

Compliance costs can be classified in a variety of ways. One way is to categorise them into mandatory (unavoidable) and voluntary (avoidable) costs. Mandatory costs are costs that a taxpayer necessarily incurs to meet the legal requirements laid upon him/her (Sandford et al., 1989, p. 12). Voluntary costs are costs that a taxpayer chooses to incur in order to minimise his or her tax liability (Australian Government, 2006, p. 386) or to be re-assured that the task has been properly executed. Examples of voluntary costs are planning and tax professional costs (which include time spent for both items).

There is a view that tax compliance costs should not include voluntary costs. The argument is that the voluntary costs do not constitute costs that a taxpayer is obliged to incur to comply with tax requirements and therefore should not count as part of compliance costs (Evans & Walpole, 1997). In addition, it is also argued that planning costs and tax professional fees include avoidance costs in the quest to minimise tax liabilities (Rimmer & Wilson, 1996, p. 5).

It is unclear whether to include voluntary costs such as planning costs as part of compliance costs. According to Allers (1994, p. 31), only “those costs which would continue to be made in the absence of the tax cannot be compliance costs”. This suggests that voluntary costs should be part of compliance costs because removal of the tax would make the voluntary costs also disappear (Sandford et al., 1989, p. 12). In addition, there are a number of allowances and deductions attached to a tax system,²⁹ which will motivate taxpayers to try to maximise the allowances claimed. Sandford et al. (1989, p. 12) state that the compliance costs should be referred to as “the costs which a reasonable man would incur” rather than based on the mandatory/voluntary costs classification. The present study follows the view that the voluntary costs, such as planning costs, should be included as part of compliance costs.

Compliance costs may also be classified according to commencement (start-up) costs

²⁹ In Malaysia, there are more than 20 reliefs (set against chargeable income) and three rebates (set against tax liability) available for PIT; among the reliefs not mentioned above are the employee’s provident fund, purchase of books and magazines, purchase of sport equipment and personal computer allowances (Inland Revenue Board of Malaysia, 2011b).

and regular (recurring) costs. According to Sandford et al. (1989, p. 16), commencement costs arise with the introduction of a new tax or a major change in tax law. Commencement costs need learning and training costs before being reduced to regular costs (Evans et al., 1997, p. 4). Sandford et al. (1989, p. 17) depict a model of changes in compliance costs (and administrative costs) with a new tax by time.³⁰ The model illustrates how compliance costs are likely to react with the commencement of a new tax law and change over time to ongoing or recurrent costs.

The present study follows the approach of Sandford et al. (1989) and many other leading authors in PIT compliance costs research regarding voluntary costs. Accordingly, the tax planning and tax professional time and costs are included in the estimates of PIT compliance costs. Regarding start-up and recurrent costs, it is important to investigate the effect of start-up costs on the new e-filing system for PIT payers in Malaysia. Therefore, the start-up costs for e-filing were identified from the respondents' first year of e-filing.³¹ However, for the purpose of an overall comparison of compliance costs between e-filing and manual filing, the present study did not separate start-up and recurrent costs.

3.4.3 Valuation of Time

Issues on the valuation of time spent have been discussed widely especially by Sandford et al. (1989, pp. 35-47) and Pope (1995, pp. 114-118). The most popular question in the argument is whether the value of time spent in complying with income tax requirements is equal to working hours, overtime or leisure time.

Sandford (1973, pp. 171-177) points out that tax-related tasks can be undertaken during working hours or spare time. Most probably, the self-employed will consider their tax time is equal to their working time but, for other individuals, Sandford concluded that most will do their tax work in their non-work time. To value a person's spare time for tax purposes, Sandford based his estimates upon studies of transport cost-benefit studies. He identified five main factors in valuing time, as follows:

1. Time spent on tax affairs depends very much on a taxpayer's attitudes. Since

³⁰ Refer to Figure 2.3 in Section 2.5.2, Chapter 2.

³¹ Refer to Figure 7.2 in Section 7.3.1 and Table 7.27 in Section 7.3.10, Chapter 7.

dealing with tax is not a pleasurable activity (like travelling), it is appropriate to put a higher time valuation on tax affairs than on time savings from travel.

2. The value of time varies among persons, a person's life span, uses, and hours of the day. Therefore, the value of time for tax affairs depends on when it is done; and taxpayers will normally do it when the opportunity cost is low.
3. Those with high compliance costs in Sandford's study were able to exchange the non-work for work time by estimating the extra income for extra hours they spent at work. Therefore, according to Sandford, it is appropriate to value the time of taxpayers with high compliance costs (for example, value at an overtime rate).
4. The value of time for tax affairs should not be given an average value for the total population. It is necessary to have a division between those who employed a paid tax professional and those who did not. Those who employed a paid tax professional are considered to be a group that prefers time to money while the other group prefers the opposite. Therefore, the time for those who hired a tax professional should be valued higher than those who did not employ one. However, this approach arguably would depend on the context and has not been used in any major compliance cost studies.
5. The value of time could be determined by way of hypothetical questions for different types of taxpayers: for those who employed a paid tax professional ("How much are they willing to pay to rid themselves of tax affairs?") and those who did not ("At what hourly rate of pay are they are willing to do such work?"), with overtime as the basis to value the leisure time.

Due to the above considerations, Sandford (1973, p. 176) concluded that the value to be placed on the time spent is the average payment per hour to be rid of all tax work (including respondents specifying nil), divided into those who employed a paid tax professionals and those who do not employ one. These values are meant to reflect the different attitudes of taxpayers. However, for those attitudes that cannot be identified (those who spent eight hours or less and did not employ a tax professional), the value of time was valued lower (25 percent lower) than the average wage rate in the UK for 1970. Sandford admitted that the values placed on time spent were "irreducible elements of arbitrariness and subjectivity".

Later, Sandford et al. (1989, pp. 35-39) identified four methods for the valuation of time: professional advisers' time (the fee), employees' time (wage rate), time of the self-employed (opportunity costs to the business), and leisure time (gross wage or after-tax wage or a proportion of wage rate or an overtime rate). Sandford et al. (1989, p. 38) also argued that the taxpayer's own valuation is the best measure of value of time; thus, this was used in reporting the average compliance costs. To increase the reliability of taxpayers' own valuation of time, the official figures from the UK Survey of Personal Income were used as a cross-check for accuracy.

Taking a different approach to Sandford (1973), Slemrod and Sorum (1984, p. 465) assumed that time spent on tax affairs came at the expense of leisure rather than work for all types of respondents (whether they engaged a tax professional or not). They valued the leisure time for tax at the after-tax wage rate. The rate was gathered through a question that asked the respondents to state their before-tax wage rate which the researchers then converted into an after-tax wage rate. Due to many unusable responses to the question, Slemrod and Sorum used the imputation technique to replace the missing values and unusable responses. This method of valuation of time costs was also used by Blumenthal and Slemrod (1992, p. 188).

Vaillancourt (1989, p. 35) argued that the time spent on tax affairs should be valued at the gross wage rate. This was because the rate represented the actual output value of the time spent, whereas the net tax value was the value to that individual. For respondents who did not estimate their wage rate, the imputation technique similar to the one used by Slemrod and Sorum (1984) was also employed by Vaillancourt. This was important in order to maintain a sufficient number of cases for statistical analysis and to produce more valid results using techniques such as regression analysis (Hair et al., 2006). Vaillancourt (1989, p. 37) also used the average hourly earnings of employees in Canada, obtained from Statistics Canada as a cross-check value to the mean reported value.

Allers (1994, p. 54) used a practical way to value the time spent by asking the respondents to value their own time for tax purposes, with Allers amending any extreme values (outliers). Allers also questioned whether time spent on tax compliance should be valued as a welfare loss or as resource cost to the economy. If the time valued by the respondents was for the former, the value not only reflected

the time spent on tax compliance but also the psychological costs or “trouble, vexation and oppression” as first identified by Smith (1776). Therefore, according to Allers, by asking respondents how much they would be willing to pay to get rid of all the compliance costs of a specific tax, the question actually estimated the psychological costs of taxpayers. This approach was attempted by Sandford (1973, p. 175) and Selmrod and Sorum (1984, p. 474, note 12), and is sometimes referred to as using “check questions”.

Pope (1995, pp. 114-118) identified six methods of time valuation that had been utilised in previous studies. The methods were: reported values by respondents; reported values but subject to a minimum hourly rate; values that taxpayers were willing to pay to get rid of all compliance costs; before-tax wage rate; after-tax wage rate; and median values. In addition, the use of a national average wage rate as a basis was introduced by Sandford (1973, p. 177), Sandford et al. (1989) and Vaillancourt (1989, p. 77). Alternatively, Allers (1994, p. 55) suggested that the use of GDP per labour year may be used to value time.

For business taxpayers, Evans et al. (1997, pp. 38-40) used the market rate as a basis to value the different levels of employees’ time. Using both approaches – namely, the reported values and the market values – would increase the reliability of the compliance cost estimates because they can be checked against each other (Sandford & Hasseldine, 1992, p. 25). The value of unpaid helper time is discussed in Evans et al. (1997, p. 11). Evans et al. reported the value of free help based on the same value as the taxpayer’s own time. This approach is considered appropriate for PIT payers since the free helper is not considered to be a professional adviser. A summary of the methods outlined above, especially as discussed by Pope (1995, pp. 114-118), is presented in Table 3.2, with a note on studies that have employed the various methods.

Table 3.2: Methods of Time Valuation

	Method	Study
1.	Each individual's own valuation of time	Sandford (1973); Sandford et al. (1989)
2.	As (1) but subject to a maximum hourly rate	Pope et al. (1990); Allers (1994)
3.	What taxpayer would pay to be rid of all compliance costs	Sandford (1973); Slemrod & Sorum (1984)
4.	The usual hourly wage rate before tax/gross	Vaillancourt (1989); Pope et al. (1990)
5.	The after-tax wage rate	Slemrod & Sorum (1984); Blumenthal & Slemrod (1992)
6.	The median value of time	Pope et al. (1990)
7.	National wage rate	Sandford (1973); Sandford et al. (1989); Vaillancourt (1989)
8.	GDP per labour year	Allers (1994)
9.	Market rate for employees	Evans et al. (1997)

Source: Adapted from Pope (1995, pp. 114-117) and some additional information from later studies.

3.4.4 Offsets to Compliance Costs

It is also important to determine whether to include the offsets in arriving at the total compliance costs estimate. The offsets of compliance costs include: (1) improved record-keeping, (2) cash flow benefits, and (3) tax deductibility expenses (Allers, 1994, pp. 38-40). The first offsetting benefit may not be relevant to PIT payers, either employed or self-employed. This is because a business person is not subject to accounting audit processes like a company in Malaysia. However, there may be benefits in terms of efficient records management which will assist the businessperson in applying for any financial assistance, for example.

The cash flow benefits may arise when the taxpayer is able to use the tax revenue for a period before it must be paid to the tax authority (Pope, 1993a, p. 70). It is a kind of interest-free loan from the tax authority to the taxpayer. However, there is also the case where tax is overpaid by the taxpayer to the tax authority which creates cash flow costs. Cash flow benefits will reduce the taxpayer's compliance costs, while cash flow costs will increase the compliance costs. Pope (1993a, p. 70) explains that the cash flow benefits and costs for taxpayers and the tax authority will cancel each other out and he therefore refers to this situation as a zero sum game within the economy as a whole. This indicates no resource implications for the society.

In Malaysia, the SAS is administered on a current year basis. This means that tax liability will be paid during the year the income is derived. Therefore, there is very little opportunity for receiving cash flow benefits for PIT payers in Malaysia. Moreover, employed or salaried taxpayers are subject to monthly tax deductions

from their gross salary, which are normally not calculated precisely. In this case, the chance to receive cash flow benefits is slim and cash flow costs will probably exist but at a very minimal sum. As a result, the present study did not take into account the effect of cash flow benefits/costs in the compliance cost estimates.

Tax deductibility expenses can be offset against compliance costs because they reduce profits as well as tax payments. However, tax deductibility items, especially for PIT payers are difficult to identify. Allers (1994, p. 40) states that only monetary expenses (e.g. salaries and wages), which are directly related to taxable income, are easy to identify as tax deductible expenses, whereas time spent by a taxpayer is difficult to value in order to determine the tax deductibility expense. However, salaries and wages expenditure is only related to business taxpayers.

In Australia, the costs of paid tax professionals and tax-related incidental expenditures are an allowable tax deduction while the value of time spent on personal tax affairs is not. Therefore, Evans et al. (1997, p. 12) included the effect of tax deductibility in their compliance costs estimate. In Malaysia, any expense that is not “wholly and exclusively” for deriving income (as stipulated in Section 33 of the ITA 1967) is not deductible. This includes payment to a tax professional. Nonetheless, for business in practice, miscellaneous expenses such as stationery, telephone and postage are an allowable deduction. Due to the Malaysian income tax law and some uncertainties (for example, the unknown percentage of self-employed taxpayers and percentage of those who claim miscellaneous expenses as tax deductibility), the present study did not include the effect of tax deductibility expenses in the compliance costs estimate.

3.4.5 Reporting Compliance Costs

There are two methods of reporting the overall compliance cost estimates, that is, reporting at the aggregate level or at a disaggregate level. The former is where the compliance costs are estimated for the whole population of PIT payers. In order to report the overall compliance costs at aggregate level, the sample of the study should be representative of the whole PIT population in order to ensure the estimate is free of bias. Therefore, reweighting the survey data may be necessary to make the data representative.

The technique of reweighting survey data has been used by many major compliance cost researchers for PIT (see, for example, Sandford, 1973; Slemrod & Sorum, 1984; Pope et al., 1990; Evans & Walpole, 1997). In order to perform the reweighting procedures Pope et al. (1990) identified three important characteristics to consider: income category, type of tax form completed, and the use of a tax professional.

Reporting the compliance cost estimates at the disaggregate level is done when investigation is only limited to the survey data. The results from the survey data are not required to be reweighted to represent the actual PIT payer population. Normally, at a disaggregate level, compliance cost estimates are reported in the various respondents' backgrounds (for example, income categories). This approach increases the reliability and accuracy of the average compliance cost estimates in each category of taxpayer (Evans et al., 1997, p. 8). Blumenthal and Slemrod (1992) reported their compliance cost estimates for Minnesota households in 1989 at the disaggregate level.

The present study reports the estimates of compliance costs at a disaggregate level for two main reasons. Firstly, the number of usable responses in this study is considered small (242 cases), which is probably not representative of the true population. Secondly, there is no information available on the number of taxpayers split into income groups or on the number of taxpayers who engage a tax professional. The information is vital for ensuring the accuracy of the reweighting process. Nonetheless, it is possible to calculate an approximate estimate using mean and median figures for estimating the overall total compliance costs for the purpose of a basic international comparison.

The overall total compliance costs estimate is normally presented in a number of forms. First, it can be reported as a proportion of the relevant tax revenue and second, as a percentage of GDP. Many studies that report the overall compliance costs at the aggregate level also present their estimate as a percentage of tax revenue/revenue yields as well as a percentage of GDP. This approach assists international comparison as well as internal or national analysis or policy review. Thus, the present study, based on an approximate estimate of overall total compliance costs, reports the compliance costs as a percentage of PIT revenue and GDP, especially for comparison purposes.

3.5 Chapter Summary

The review of compliance costs literature indicates a recent dearth of research in this area. Although studies in this area showed strong development between the 1980s and 1990s in many parts of the world, the research in this field, particularly on PIT payers, seems stagnant. There are a few countries that update their compliance cost estimates such as the USA and Canada. Yet, there are very limited studies on compliance costs of PIT payers in developing nations such as Malaysia. Overall, the compliance costs issue is neglected in many developing countries compared to developed countries.

The major findings from the studies on compliance costs for PIT indicate that compliance costs are high and regressive. The self-employed remain the group with the highest compliance costs. Other theoretical issues related to compliance costs such as components and classification of compliance cost items, valuation of time spent by taxpayers, and reporting the compliance costs have been addressed by researchers as discussed in this chapter. The next chapter discusses the methodology that was adopted for the collection and analysis of data in this study.

Chapter 4

Research Methodology

4.1 Introduction

In Chapters 2 and 3, a review of the literature was carried out in relation to taxation compliance costs estimation and usage behaviour of e-filing. This chapter discusses the methods and procedures adopted in this study to obtain the data and how it was analysed. In particular, this chapter covers the following aspects: the research approach and rationale, pre-pilot and pilot tests, selection of participants, instrumentation, field procedures, data collection and data analysis. Additionally, non-response bias, response representativeness and methodological assumptions are addressed, and a summary is presented at the end of the chapter.

As explained in Chapter One, this study consists of two parts: the first part examines the determinants of e-filing usage behaviour among personal taxpayers and the second part estimates the compliance costs and the difference in the compliance costs between e-filing and manual filing. The explanation of the research methods, particularly regarding the measurement and data analysis procedures, is divided according to these major research questions.

4.2 Research Objectives

In this study, two main objectives of research are examined. The first is to examine the factors that influence the e-filing usage behaviour among Malaysian PIT payers and the second is to examine the effect of e-filing on compliance costs of filing PIT return. Major and minor research questions are developed in order to achieve the two main objectives stated.

The first major research question and related minor research questions seek to identify cause-and-effect relationships among the variables. These types of questions are referred to as explanatory research questions (Zikmund, 2003, p. 56). Specifically, this study seeks evidence to identify the causes that affect the PIT payers' behaviour regarding the use of the e-filing system. To achieve this objective, a model identifying the factors that affect the e-filing usage behaviour was

developed,³² statements to represent each variables are adapted from Venkatesh et al. (2003) to represent the independent variables. Besides investigating the significant determinants that affect the e-filing usage behaviour, the characteristics of the e-filing users and non-users are also investigated. This is essential for the development of effective strategies to increase the take-up rate of the e-filing system.

The second major research question and related minor research questions are designed to explore a specific situation, social setting or relationship, which may be referred to as exploratory analysis (Neuman, 2007, p. 16). Particularly, this study aims to examine the level of compliance costs of PIT in Malaysia by estimating the compliance costs of PIT payers and comparing the compliance costs between e-filing and manual filing. The comparison is undertaken to investigate the effect of e-filing on compliance costs.

4.3 Research Approach

This research is concerned with the low take-up rate of the e-filing system among the PIT payers in Malaysia. Therefore, it is necessary to understand the behaviour of this category of taxpayers and to estimate the compliance costs objectively. The approach taken is consistent with the positivist paradigm, employing quantitative methods. The paradigm relies on deductive reasoning whereby the researcher follows a structured process leading to the identification of causal relationships, logical conclusions and the making of predictions according to various confidence levels (McKerchar, 2008, p. 7; 2010, p. 72).

Although the quantitative paradigm is a more traditional approach to research (Evans, 2008, p. 456), it is the most widely practised approach in social science generally (Neuman, 2007, p. 42). In a review of tax operating costs studies, it is found that although various methods are employed, such as interviews, case study and diary study, quantitative techniques have the major emphasis (Evans, 2003). The approach is also a generally accepted technique in information technology studies. It is found that 96.8 percent of 155 published studies in this area, between 1983 and 1988, used the positivist paradigm (Orlikowski & Baroudi, 2002, p. 8).

³² Refer to Section 4.5.1.

The quantitative method allows the research problem to be conducted in very specific terms (Cooper & Schindler, 1998, p. 164). It also follows the original set of research aims, arriving at more objective conclusions, determining the issues of causality and eliminating subjectivity of judgment (Kealey & Protheroe, 1996, p. 142). In addition, the quantitative method has the power to generalise its findings to a larger population and to be replicated if the study is unbiased, objective and valid (Bryman & Bell, 2003, pp. 81-83). On the other hand, qualitative research can be too subjective if it relies too much on the researcher's unsystematic views of what is significant, can be difficult to replicate, and generalisation of the findings is restricted because the number of participants is too small and lacks transparency, particularly in the selection of the participants (Bryman & Bell, 2003, pp. 299-301).

As a result, it was decided that the quantitative method would be the most appropriate approach for this study to achieve the intended objectives. Although using more than one method may result in more rigorous results, other constraints have been considered. Ramenyi, Williams, Momey, and Swartz (1998, pp. 44-45) suggest that the research approach should accommodate the research questions, costs, available budget, available time and target dates for completion, and skills of the researcher.

4.4 Survey Research Design

4.4.1 Selected Survey Method and Rationale

There are various research methods in the quantitative approach such as the controlled experiment, content analysis, analysis of existing data, participant observation and survey (Babbie, 1997, pp. 27-34; Ramenyi et al., 1998, p. 48). The present study was undertaken by way of the survey method, employing a large-scale mail questionnaire survey. This method is popular in social science studies and therefore it is also a method of empirical verification (Babbie, 1997, p. 26) which can produce reliable measures. Moreover, it was found to be the most reasonable method to cover a wide geographical area, such as Malaysia, to represent a given population (Loo, 2006b, p. 130). Nonetheless, the author also believes that the use of mixed methods could add value and widen the understanding of the current field of study. However, due to budget constraints and other unavoidable circumstances, it is

perceived that a large-scale questionnaire survey is adequate to gather the data for the current study.

In social science studies, the mail questionnaire survey is a popular method (Cohen & Cohen, 1983; Babbie, 1997; Evans, 2008). In taxation operating costs studies specifically, two-thirds of the studies reviewed by Evans (2003, p. 71) used postal surveys for data collection either wholly or partly. Examples of the studies that utilised a mail survey in the review by Evans (2003) include Pope (1989), Hasseldine (1995) and Tran-Nam, Evans, Walpole, and Ritchie (2000). Later studies in the taxation area using the same method include Kasipillai et al. (2003), Abdul-Jabbar (2009), Palil and Lymer (2009) and Isa and Pope (2011). This is a popular method probably because of the advantages it offers, as discussed below.

The main advantages of mail survey research are the reduced time and costs of carrying out the survey as compared to personal interviews (Sandford et al., 1989; Babbie, 1997). The survey method can obtain a wide range of standardised information from a large sample as it incurs lower costs and consumes less time in its execution (Barribeau et al., 2005). It enables respondents to complete the questionnaire in their own time and in a more convenient way compared to the face-to-face interview (Loo, 2006b). Moreover, a mail survey adds more weight in a sensitive area as the approach provides genuine anonymity and eliminates the bias of the interviewer (Sandford, 1995a, p. 384).

On the other hand, a mail survey possesses some weaknesses. It is prone to a low response rate (Fowler, 1993, p. 59). Slemrod and Venkatesh (2002), for example, surveyed 2,499 business taxpayers and 1,824 tax professionals in the area of compliance costs in the USA and received just over a ten percent response rate for both types of respondents. Saad (2011) studied perceptions of tax fairness among personal taxpayers and received only an approximate ten percent response rate from New Zealand taxpayers. In Malaysia, Abdul-Jabbar (2009) obtained about a 16 percent response rate through a mail survey.

Furthermore, a mail survey relies on respondents' honesty and their ability to correctly interpret the questions. Even though the questions are the same for all respondents, the meaning of the question might be differently interpreted (Sandford, 1995b, p. 378; Axinn & Pearce, 2006, p. 4). Their interpretation might be different from the

intended measure from the researcher's perspective. This may result in measurement error as discussed by Dillman (2007). However, these limitations can be minimised to some extent.

The weaknesses of a questionnaire mail survey may be rooted in the design of the instrument itself (McKerchar, 2008, p. 12). With careful design of the survey instrument, the weaknesses may be overcome. Moreover, better timing of the distribution of a tax questionnaire may increase the response rate and the quality of the response (Song & Yarbrough, 1978, p. 443). Specifically, four sources of survey errors should be minimised through the design of the survey in order to increase the quantity and quality of response (Salant & Dillman, 1994; Dillman, 2007). These sources of error are:

1. *Sampling error* – is the result of attempting to survey only some, and not all, of the units in the survey population.
2. *Coverage error* – occurs when the lists from which the sample is drawn do not include all elements of the population (e.g. omission of people without a telephone).
3. *Measurement error* – occurs when a respondent's answer to a survey question is inaccurate, imprecise, or cannot be compared in any useful way to other respondents' answers; this error results from poor wording of questions and poor questionnaire construction.
4. *Non-response error* – results from people who respond to a survey being different from the sampled individuals who did not respond.

The Tailored Design Method (TDM), originally known as the Total Design Method, by Dillman (2007), suggests ways to improve the quality and quantity of response. It follows the theory of social exchange to understand why people do or do not respond to surveys. The theory implies that people will react if they think that, in exchange for their action, they will gain something: in other words, that people will only react if they believe the costs they have to incur are less than the rewards. As a result, it is important to establish three elements: (1) increased rewards for responding, (2) reduced perceived costs, and (3) a trust that the ultimate rewards will outweigh the costs of responding.

According to Dillman (2007, pp. 15-16), rewards, reduced costs and trust can be gained in many ways. Besides giving tangible rewards, the cover letter and the questionnaire itself can be worthwhile if they show positive regard, say “thank you”, ask for advice, support group values, are interesting, give social validation (social influence), and inform respondents that the opportunity to respond is limited (using due dates for returning a questionnaire). Among the suggestions for reducing the “cost” to the respondent are to use appropriate language (e.g. not to embarrass the respondents), make the process of answering the questionnaire convenient (e.g. provide a postage-paid return envelope), make the questionnaire short and easy, and minimise the request for personal details. Giving an advanced token (for example a small gift voucher), stating the sponsorship of the survey by a legitimate authority and making the task appear important are some ways to increase *trust* among respondents as suggested by Dillman.

It is also argued that people may answer the questionnaire due to the good nature that they possess, which is referred to as citizenship values. Under the concept of citizenship, Frey (2003, p. 95-96) argues that a citizen has obligations to pay taxes and abide by the law even when a citizen is outside his or her own country. Beyond that, a citizen is also expected to demonstrate “public spirit” and “civic virtue.” It is these values that perhaps encourage respondents to reply to the research questionnaire in this thesis.

Based on papers presented at a tax compliance costs conference in 1994, Sandford (1995b, pp. 378-379) highlights recommendations to improve the response rate of mail surveys in tax research. The recommendations are in line with the theory of social exchange by Dillman (2007) as discussed above. The suggestions include discussing the questions with an advisory committee, promising confidentiality and anonymity, using a pre-pilot and pilot survey to test the questionnaire informally, choosing the timing of the survey very carefully, and sending out reminders.

As well as these suggestions by Sandford (1995b), Pope (1995, pp. 110-111) used five mail surveys to study compliance costs for major taxes in Australia and concluded that a questionnaire of four pages of A4 size paper, printed on A3 size coloured paper and folded into a booklet format worked well. An option for respondents to fill in their details is useful for the possibility of further investigation.

Using a five-point Likert scale to investigate respondents' perceptions as well as an open-ended question for recommendations by respondents is also beneficial.

From the above discussions, it is apparent that a mail questionnaire survey approach appears to be an appropriate method for this study, mainly on the ground that the study covers a large population of personal taxpayers nationwide, which can be achieved within a reasonable cost and time framework. It is also a method recommended by Sandford (1995b, p. 385) for taxation studies. A mail questionnaire survey approach was therefore adopted for the present study.

In recognising the weaknesses in survey research, additional measures and strategies were included in the survey processes to improve the quality of the response and to minimise the survey errors. Among the actions taken were selecting the sample through the registered taxpayer database held by the IRBM (with the cooperation of the IRBM), making sure that the sample represented the population in the database (through stratified random sampling), designing the wording of the questionnaire properly according to the suggestions discussed above, including a separate cover letter to explain the purpose of the study and emphasise the respondents' confidentiality, and undertaking a pilot test to ensure the questions would be understood and interpreted as desired by the researcher. The measures taken to increase the response rate are discussed in Section 4.4.5. The next section presents the development of the survey instrument for this study.

4.4.2 Survey Instrument

Based on the discussions above regarding how to improve the quality and quantity of response, a postal survey questionnaire was designed for the data gathering processes. The primary aims of the questionnaire were two-fold: to examine the determinants of the usage behaviour of e-filing, and to estimate the compliance costs. Questions to explore the awareness of the pre-filled return system among Malaysian taxpayers were also included as part of the e-filing questions. A copy of the survey questionnaire is available in Appendix G (Malay language version) and Appendix H (English version).

The questionnaire was initially prepared in English and then translated into the

Malay language as this is the national language in Malaysia. However, the present study employed two separate versions of the questionnaire. The use of separate versions, rather than a dual language version, was considered important because it reduced the length of the questionnaire, which was necessary to increase the response rate. The Malay version of the questionnaire (considered as the primary questionnaire) was printed in a yellow background colour to catch the attention of the respondents. The respondents were given the option of responding to either version. A single-page questionnaire, in this instance an A3 sized paper folded into A4 size, was among the main design layouts recommended by Pope (1995, p. 110).

There were five sections in the questionnaire (Section A to Section E). Section A consisted of questions on demographic information of the respondents such as gender, marital status, age, ethnicity, education level, main employment status, income level, and geographic area. Respondents were asked to tick a box to answer each question or fill in the appropriate details as requested. This information was important to build the respondents' profile for this study and to determine the representativeness of the respondents in relation to the whole population.

Section B focused on the information related to taxation details of the respondents such as gross annual income range, tax liability range, sources of income, level of tax knowledge, filing method and the first year of e-filing. Answers for this section as well as Section A were used to categorise the findings in later sections to understand the usage behaviour of the e-filing system versus the manual system, and the magnitude of compliance costs. Similar to Section A, this section required respondents to tick their answer or fill in appropriate details if they chose "other" as their answer.

Section C was designed to collect information about the costs of filing tax returns. This section asked respondents about how much time and money they spent in order to file an income tax return for the 2009 year of assessment. Most of the items in this section were adapted from previous compliance costs studies for personal taxpayers (especially from Pope et al. (1990), Slemrod and Sorum (1984), and Blumenthal and Slemrod (1992)) and were modified to suit the Malaysian environment as the study focused on the Malaysian PIT system. This section aimed to answer the major and

minor research questions B.

Section D consisted of questions related to perceptions towards e-filing and pre-filing systems. This section aimed to answer the main research question A regarding the determinants of e-filing usage behaviour. There were 22 statements on e-filing perceptions; these were developed based on the model for e-filing usage behaviour discussed earlier in Chapter 2 and adapted mainly from Venkatesh et al. (2003) to suit the e-filing system in Malaysia. Using five-point Likert scales (1=strongly disagree to 5=strongly agree), respondents were requested to indicate their level of agreement with each of the statements. In addition, as the pre-filing system was very new in Malaysia, eight statements relating to pre-filing perceptions were added to investigate the level of awareness and understanding of the system among Malaysian taxpayers.

The items in the questionnaire are constructed with five-point Likert scales, as previous research indicates that a five-point scale is just as good as any other and that any increase from five to seven or nine points on a rating scale does not necessarily improve the reliability of the ratings (Elmore & Beggs, 1975, pp. 328-329). Long scale (e.g. seven or nine) may be cognitively difficult for respondents and a short scale (e.g. three) may be cognitively easy, but it may not differentiate respondents' opinions (Weisberg, Krosnick, & Bowen, 1996, p. 82). Moreover, five-point scales are appropriate in terms of the appearance of this study's questionnaire.

Section E consisted of an open-ended question. This was intended to elicit respondents' comments and suggestions regarding e-filing, pre-filing or income tax systems in general. The inclusion of this section followed a suggestion by Pope (1995) to give respondents an opportunity to express their views. Their comments and suggestions could add value to the quantitative findings and future research.

4.4.3 Selection of Participants

Ideally, samples are selected so that they represent the population of interest (Tabachnick & Fidell, 2007, p. 7). The respondents of this study were Malaysian personal taxpayers who filed their income tax return in 2010 (for the 2009 year of assessment). To ensure that the respondents came from that group of taxpayers, the

use of an appropriate population database was crucial to ensure the representativeness of the sample extracted. The technique for selecting participants for this study was similar to the one used by Hasseldine (1995). In Hasseldine's study, the sample was selected by the Inland Revenue Department and the department sent out the questionnaires due to confidentiality reasons. This sample was believed to ensure representativeness because it came from the tax authority database.

For the present study, firstly, a letter requesting the IRBM to help the researcher in conducting this study was sent to the Chief Executive Officer. Overall, the IRBM agreed to provide assistance for conducting the present study.³³ After seeking the advice from Deputy Director General (Policy), the IRBM also agreed to distribute the questionnaires provided that the sample selected was not made known to the researcher. Therefore, blank envelopes each containing a questionnaire, a cover letter and a postage-paid return envelope were given to the IRBM. The IRBM then printed the respondents' names and addresses on the envelopes, and posted the questionnaires without providing any information about the sample to the researcher. The IRBM was requested to retain the names and addresses of the sample for the purpose of sending reminders.

The sampling technique used for this study was cluster sampling. This technique offers more heterogeneity within groups (e.g. different interests, orientations and values) and more homogeneity among groups, which is the reverse of stratified random sampling (Sekaran, 2005, p. 274). The cluster sampling in this study was based on the 14 states in Malaysia. The process of selecting the participants was carried out by the IRBM using its database of registered taxpayers.

About 2,600 taxpayers were randomly selected by the IRBM for this study. The number was determined by the researcher based on the researcher's budget and with the expectation of at least a ten percent response rate. In addition, Fowler (1993, p. 14) argues that a random sample size of 150 would describe a population of 15,000 or 15 million with the same degree of accuracy. Taking this view, the above sample was considered adequate to describe the PIT payer population in Malaysia with a

³³ Refer to Appendix D for approval letter from the IRBM.

total number of almost 4.8 million for 2009 (Inland Revenue Board of Malaysia, 2010a, p. 50).

4.4.4 Pilot Testing

Pilot testing was carried out to increase the validity and reliability of the questions in the questionnaire before final administration. This study incorporated two stages of pilot testing, namely, during question development and questionnaire development. The purpose of the first stage of pilot testing was to establish how to phrase each question, to evaluate how respondents interpreted the meaning of the questions, and to check whether the range of response alternatives was sufficient (De Vaus, 2002, p. 114). Two experts in the field of taxation and an expert in research methodology, as well as two lay people, were asked to review and comment on the initial questionnaire.

The questionnaire was then improved after incorporating the comments and suggestions received through the first stage pilot test. Based on the pilot test recommendations, the questions created to explore perceptions of e-filing in Section C were adjusted and rewritten to be more understandable by Malaysians. Scales for questions on the level of IT knowledge (Question 9) and tax knowledge (Question 13) (scale of 1 to 5) were modified from “Excellent – Poor” to “Poor – Excellent”. The scales were changed to be consistent with the Section C scales (1=Strongly disagree, 5=Strongly agree).

In stage two, the questionnaires were sent out to a small group of taxpayers of 30 respondents in Malaysia; this group consisted of the researcher’s friends and relatives. They include employed and self-employed taxpayers as well as academics. This stage was carried out with the objective of refining the questionnaire instrument. Based on the feedback from this stage of pilot testing, the wording of a few items was changed.

One important change was made regarding the space allocated to answers to the question of time spent in Section C. In the original version of the questionnaire, only one column was provided. This was changed into two columns: one for hours spent and another one for minutes spent. This was done so that people who spent less than

one hour could easily estimate their time spent. Based on the pilot tests, the Malay language version of the questionnaire was also prepared. The Malay language version was checked by experienced taxation lecturers in Malaysia and pilot testing was not repeated.

4.4.5 Measures to Increase the Response Rate

An adequate response rate is important for statistical analysis. Therefore, measures to increase the response rate of the mail questionnaire surveys were performed during the data collection period. The measures taken to increase the response rate for this survey included:

1. The sample was extracted from a database of current taxpayers held by the IRBM.
2. An accompanying letter, emphasising confidentiality and the purpose and importance of participation was provided. The researcher's contact details were also included in the letter if the respondents needed to contact the researcher. The logo of Curtin University was used in the letter to increase the respondents' trust (see Appendix F).
3. Ethics approval was sought from Curtin University before the survey was carried out and the approval number and contact regarding ethics issues were enclosed in a covering letter (see Appendix E).
4. Questionnaires were printed on coloured paper with answer spaces left white to create a pleasing appearance and make the questionnaire easy to fill in.
5. The length of the questionnaire was only four pages of A4 size paper printed on A3 paper, folded into a booklet. This was designed to give the questionnaire a professional look and persuade the respondents that the questionnaire would not take too long to complete.
6. Respondents were given options to answer either the Malay or English version of the questionnaire. The Malay version was considered the primary questionnaire because the Malay language is the national language and used in formal education. However, businesspeople and professionals who have attained higher education levels may prefer the English version.
7. Postage-paid return envelopes were supplied to reduce taxpayers' costs.
8. Respondents were thanked for spending their time answering the

questionnaire so that the respondents feel appreciated.

9. A copy of the survey results was promised as a token for those respondents who specified their contact details.
10. The survey distribution was timed so that taxpayers' memories regarding the filing process were still fresh. In this case, the questionnaires were distributed immediately after the end of the filing period. In Malaysia, the filing periods for individuals without business income and with business income end on 30 April and 30 June each year, respectively. The distribution of the questionnaire surveys started from July 2010.
11. A postcard-sized reminder was sent. Due to budget constraints, reminders were only able to be sent out once. The reminder worked very well because about half of the questionnaires were received after the reminders were sent out (see Appendix I).

4.4.6 Survey Execution

The data collection period was approximately three months, commencing in July and ending in September 2010. The questionnaire package contained an accompanying letter, a questionnaire in the Malay language, a questionnaire in English and a postage-paid envelope with return address. The package was put in a blank envelope on which the IRBM would print the respondent's name and address. The preparation of the questionnaire package was time consuming. This was especially because the stamps (for the return envelopes and outside envelopes) needed to be placed manually on the outside envelopes as well as the return envelopes.³⁴

The prepared questionnaire sets were couriered to the IRBM in May 2010. This month was chosen because the survey was expected to be distributed soon after the tax deadlines passed for personal taxpayers without business income (last filing date 30 April) and taxpayers with business income (last filing date 30 June). This timing

³⁴ The reasons for manually stamping the envelopes were two-fold. First, the electronic stamping for outside envelopes by the postal department could not be done because the stamps needed to be placed before being sent to the IRBM for distribution. Electronic stamping can only be done for envelopes that will be distributed on the same day as printed by the electronic machine. Secondly, the researcher was informed by a postal officer at a Post Malaysia branch that the reply-paid envelopes were only available for businesses. It was only found out after the distribution that the service was actually also available for individuals. The use of reply-paid envelopes would have saved the researcher's time and energy (rather than placing the stamps on 2,600 return envelopes) as well as the researcher's money (to pay a helper to put stamps on return envelopes and stamps for non-response cases).

had been suggested as ideal for questionnaire distribution on tax issues in Malaysia (Palil & Lymer, 2009, p. 12). Timing was crucial because the estimation of compliance costs needs taxpayers to remember the approximate time and costs they have spent and to reduce bias or exaggeration in estimation.

While this study tried to follow as many as possible of the suggestions to improve the quality and quantity of mail survey responses, there were still other circumstances beyond the researcher's control which were believed to affect the response rate. Two problems were encountered while distributing the questionnaire. First, due to an unforeseen technical problem encountered by the IRBM in the extraction of sample names and addresses, the IRBM could not immediately mail the questionnaires as planned.

Secondly, an announcement about an increase in postal rates came a day before the implementation, on 1 July 2010. Upon the new implementation, the cost for standard mail weighing up to 50 grams was raised from 40 cents to 70 cents. The cost significantly increased the researcher's postage costs and the original targeted sample size of 3,000 had to be reduced to only 2,600. However, the extra stamps could only be added to the outside envelopes because the return envelopes were already sealed. Fortunately, with the help of the IRBM, the process to top up the stamps was done smoothly. The questionnaire sets were sent late in July 2010 with the return envelopes having insufficient postage stamps on them. This was definitely expected to reduce the response rate.³⁵

To help the respondents with queries and to ensure the standardised interpretation of questions, the researcher's contact details were provided in the cover letter. During the data collection period, there were a few respondents who contacted the researcher through telephone and email asking some questions related to the study. Some of them appreciated being included in the survey but one respondent thought completing the questionnaire was a nuisance, although that person did return the

³⁵ If the stamp rate was at the old rate, the sample size could be bigger as the conventional wisdom is that the larger the sample size, the better, because the response rate might be higher (Godwin, 1995, p. 97). Moreover, when the stamp on the return envelope was not enough, the respondents may think that the envelope will not arrive at the recipient anyway, therefore, it discouraged them from completing the survey. This inference is based on a phone call, an email and notes that the researcher received from respondents. For example, one respondent called warning that the stamp was inadequate and that he was afraid that the letter would not arrive to the recipient; another respondent who affixed an extra stamp wrote a note that the researcher owed him/her for the postage.

questionnaire.³⁶

There were two interesting communications from members of the sample. One elderly man who was a farmer in the state of Pahang called for help completing the questionnaire because he found it hard to do it himself. He explained that, although he found the questionnaire difficult, he really wanted to help. Another member of the sample sent a letter written on an old type-writer informing the researcher that he was only running a small business and received a small annual income and that he did not have to pay any tax for that year. The tone of the letter indicated that he believed the researcher might penalise him.

A reminder postcard system was used to increase the response rate. The postcards were sent to the IRBM to be distributed to the same sample. This style of reminder was used because it was cheaper in terms of printing and postage as compared to a letter. The reminders were sent out about four weeks after the questionnaires were distributed. Due to lack of funds, a duplicate questionnaire was not sent along with the reminder but those respondents who needed another copy were encouraged to contact the researcher by telephone or email.³⁷ In the postcard, the researcher thanked the respondents who had returned the questionnaires and politely asked the respondents who had still not returned them to complete and return them to the researcher. Before the data analysis procedures are presented, the next section explains the measurements to answer the research questions.

4.5 Measurements

4.5.1 Development of E-Filing Usage Behaviour Model

On the basis of the analysis of previous literature, it was decided that the present study would adapt the statements from Venkatesh et al. (2003) to suit the Malaysian e-filing environment. The statements were chosen because they represent eight major theories available in the acceptance of technology literature. However, the UTAUT model itself was not utilised due to the following reasons:

³⁶ The respondent wrote a note to the researcher acknowledging his/her feeling.

³⁷ None of the respondents contacted the researcher either by phone call or email for a copy of the questionnaire. However, there were respondents who contacted the researcher (either by phone call or email) encouraging the researcher to complete her study as well as proposing other areas to be researched.

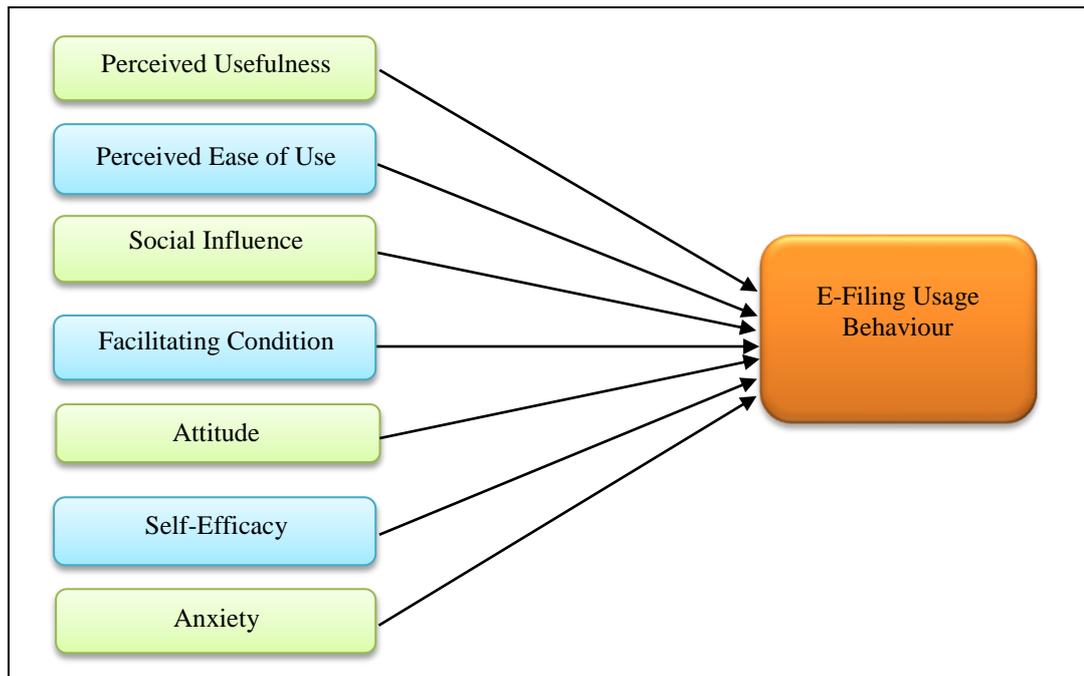
1. This study is an exploratory study aiming to determine the factors affecting the actual usage behaviour of e-filing in Malaysia. Although the UTAUT model has been well-tested and well-received in other countries, such as the USA and Taiwan, Malaysia has a different culture. Moreover, as this study is newer, the variables that were previously found to be insignificant may be found to be otherwise (and vice versa).
2. All the models included in establishing the UTAUT model comprise seven groups of constructs.³⁸ However, only four groups of constructs were found as being significant. The other three constructs, specifically: *attitude*, *self-efficacy* (or *self-ability*) and *anxiety*, were not included in the final model of UTAUT due to insignificant results. These variables may be significant in the current e-filing environment in Malaysia.
3. All the models included in establishing the UTAUT model were conducted on employees who were being introduced to a new technology (within three months of this being introduced) (Venkatesh et al., 2003, p. 437). By contrast, the current study is being tested on the tax e-filing system which has been implemented for more than five years.

Another theory, named SCT, was also deemed inappropriate for the current study. Although SCT applied by Compeau and Higgins (1995) was designed for the purpose of examining actual usage behaviour (which is similar to the current study), the theory only tested four variables, namely: *self-efficacy*, *outcome expectation* (perceived usefulness), *affect* and *anxiety*. Therefore, this theory was not utilised in the current study in order to investigate whether or not other variables such as *perceived ease of use*, *social influence* and *facilitating conditions* may be statistically significant. As a result, all of the eight variables tested in establishing the UTAUT model were included in the model of e-filing usage behaviour in Malaysia.

The proposed model to examine the e-filing usage behaviour as adapted from Venkatesh et al. (2003) is illustrated in Figure 4.1.

³⁸ See Table 2.4: Seven Variables in Estimating UTAUT, in Section 2.5, Chapter 2.

Figure 4.1: Proposed Model of E-Filing Usage Behaviour.



4.5.2 Measuring the E-Filing Usage Behaviour (Dependent Variable)

Many studies that measure the usage behaviour of e-filing employ “intention to use” to predict the actual usage behaviour (see, for example, Chu & Wu, 2004; Fu et al., 2004; Fu et al., 2006; Hung et al., 2006; Ilias et al., 2008; Ambali, 2009; Che-Azmi & Bee, 2010). However, this study uses the actual usage behaviour as the dependent variable. Based on the actual filing method utilised in 2010 (for the 2009 assessment year), respondents were labelled as e-filers if they lodged their income tax return through the e-filing system and as manual filers if they chose to submit their returns through manual paper filing.

Question 15 in Section B of the questionnaire was specifically designed to identify the actual e-filing usage behaviour among personal taxpayers. The question asked respondents to indicate the filing method that they used to submit their 2009 return. Three options were given for the answer, namely: (1) e-filing, (2) mail, or (3) by hand to the nearest IRBM branch. For the purpose of measuring taxpayers’ usage behaviour of the e-filing system, the second and third chosen answers were grouped together as not using e-filing, while the first answer indicated the use of e-filing. For statistical analysis purposes, those who used the e-filing system were coded as “1” and those who did not use the e-filing system were coded as “0”. It was a categorical

dependent variable (“1” or “0”).

4.5.3 Measuring the Determinants (Independent Variables)

Originally, 22 statements adapted from Venkatesh et al. (2003) were employed to measure the seven determinants of e-filing usage behaviour as depicted in the model (Figure 4.1). For each statement, respondents were asked to indicate their level of agreement using five-point Likert scales (“strongly disagree” to “strongly agree”). However, the statements were listed in the questionnaire without labelling the statements to represent any particular determinant variable. This was done to minimise the use of leading questions as suggested by De Vaus (2002, p. 98).

Since the statements were adapted from international studies, it was preferable to use EFA to group the statements on a statistical basis. Through EFA, one of the questions was dropped from further analysis and the other questions were grouped into four categories, instead of seven in the original, and two of the statements were deleted due to correlations of less than 0.3, which were not suitable for factor analysis to be conducted (Hair et al., 2006, p. 114). The new variables were renamed as *PU*, *self-ability*, *anxiety* and *external influence*.³⁹ The data analysis and statements measuring each variable are summarised in Table 4.1.

³⁹ Refer to Section 4.6.3.2 for further explanation on factor analysis conducted.

Table 4.1: Statements Measuring the Determinants of E-Filing Usage Behaviour

Determinant/Factor	Measurement (Statement)	Item
<i>Perceived Usefulness</i>	I find/would find the e-filing system useful to complete my income tax.	Useful
	Using the system enables me to accomplish my filing more quickly.	Quick
	If I use the system, I will get my tax refund more quickly.	Refund
	Using the system would save my costs of filing my tax return.	Savecost
	My interaction with the system is/would be clear and understandable.	Clear
	Learning to operate the system is easy for me.	Easylearn
	I find/would find the system easy to use.	Easyuse
	The system makes filing income tax more interesting.	Interesting
	I like filing my return with the system.	Like
<i>Self-Ability</i>	I have the resources necessary to use the system.	Resource
	I have the knowledge necessary to use the system.	Knowledge
	I could complete my tax filing using the system without anybody telling me what to do as I go.	Nohelp
<i>Anxiety</i>	I feel nervous about using an e-filing system.	Nervous
	It scares me to think I could lose a lot of information using the system.	Scare
	I hesitate to use the system for fear of making mistakes I cannot correct.	Hesitate
	The system is somewhat intimidating to me.	Intimidate
<i>External Influence</i>	People who influence my behaviour (for example my colleagues) think that I should use the system.	Colleagues
	People who are important to me (for example my family) think that I should use the system.	Family
	In general, the IRBM has supported the use of the system.	IRBM

4.5.4 Measuring the Awareness of a Pre-Filing System

As part of an e-filing system, pre-filing has been introduced in many developed countries such as Denmark in 1988 and Sweden in 1995 (Organisation for Economic Co-operation and Economic Development, 2008b, p. 9). In Malaysia, the system is very new and has not been widely used by the IRBM.⁴⁰ The system is considered to be an advanced system which utilises technology to prepare income tax returns for taxpayers using information from third parties as well as information held by the relevant tax authority (Organisation for Economic Co-operation and Economic Development, 2006). It is believed that the system can significantly reduce taxpayers' compliance costs (see, for example, Klun, 2009).⁴¹ The pre-filing system

⁴⁰ The IRBM tested a pre-filing system for two organisations in 2010 (YA2009). The organisations were the IRBM itself and Petronas (the National Petrol Company). Source: Interview with IRBM official (24 May 2010).

⁴¹ In Slovevia, Klun (2009) found that a pre-filled tax returns system reduces compliance costs by around 73 percent although this figure may be overstated.

is also a good tool to help reduce non-compliance due to the gathering of information from reliable sources (Kleven et al., 2010). In addition, some countries like Denmark use automatic acceptance of fully pre-populated returns after certain dates (Organisation for Economic Co-operation and Economic Development, 2006, p. 11), which frees a taxpayer from non-filing. Therefore, it is useful to investigate the level of awareness among Malaysian personal taxpayers regarding this new system.

To measure the awareness, eight statements were developed to explore taxpayers' perceptions of the appropriateness of such a system in Malaysia. Respondents were asked to indicate their level of agreement with the statements using five-point Likert scales (1=Strongly disagree to 5=Strongly agree). Each statement was evaluated individually and factor analysis was not conducted to group the statements. This was because it was not the objective of this study to reduce the number of statements. If the average answer for each item was more than three, it was assumed that the respondents agreed with the statements and if the average was below three, it indicated that they did not agree with the statements. However, if the average or median was centered to three, it showed that the respondents' level of awareness was still low because they could not provide an opinion about the statements. The statements measuring the awareness of a pre-filled return system are presented in Table 4.2.

Table 4.2: Statements Measuring the Awareness of a Pre-Filled Return System

Number	Statements
1.	The IRBM should have access to incomes and expenses information from third party.
2.	The IRBM should pre-fill my income tax return.
3.	Pre-filling would involve tax data security problems.
4.	Pre-filling will make taxation a lower priority to taxpayer.
5.	Pre-filling will help solve the problem of tax complexity.
6.	Pre-filling will reduce the burden and costs of filing an income tax return.
7.	I understand well the tax pre-filling.
8.	Overall, I like the idea of pre-filling of income tax return.

4.5.5 Measuring Tax Compliance Costs

Tax compliance costs for PIT arise from the requirements of filing an annual income

tax return.⁴² Pope (1990, p. 1) states that compliance costs for personal income tax consist of three main components, namely, the time spent by a taxpayer on completing the tax form or in preparing information for the tax agent/accountant, the fees paid to a professional adviser, and other incidental costs. The last two components are normally grouped as monetary costs. Slemrod and Sorum (1984, p. 467) divided the time spent into four components: namely, time for researching, time for record-keeping, time for return preparation, and time spent with a tax adviser. Blumenthal and Slemrod (1992, p. 190) added “time to arrange financial affairs” as another time spent component. The time spent is then converted into a monetary figure and added to the monetary costs to become the total compliance costs.

Items for monetary costs include fees paid to professional assistants and other recurring additional expenditure related to the filing of a tax return. For the purpose of this study, other expenditure was divided into two categories: expenditure related to IT, and expenditure not related to IT. The IT-related expenditure was specifically designed to gauge IT expenses especially for e-filing users but excluded the initial or start-up expenditure such as the costs of buying a computer.

In measuring the time spent, this study divided time spent into ten components or tax activities in filing income tax returns for personal taxpayers. Respondents were asked to estimate approximately how much time was spent (in hours and minutes) for each compliance time component. The time spent was added up to become the total compliance time spent. If a respondent did not answer some items or left certain items blank, it was treated as zero (i.e. respondents did not spend any time on the items). This was done because there was no clear instruction in the questionnaire to put zero or a dash if respondents did not incur any time. A study by Abdul-Jabbar (2009, p. 330) treated blank time estimates in the same way. The compliance time components are explained in Table 4.3.

⁴² See Sandford et al., (1989, p. 10) for a broad definition of compliance costs.

Table 4.3: Compliance Time Components and Explanation

Components	Explanation
1. <i>Learntime</i>	Learning about tax before filling in income tax return.
2. <i>Keeptime</i>	Keeping or obtaining records, such as receipts and statements of remuneration from employers.
3. <i>Looktime</i>	Looking at tables or notes to find eligible deductions, reliefs and rebates or tax rates.
4. <i>Advicetime</i>	Getting advice from someone else to fill in income tax return.
5. <i>Completetime</i>	Completing the income tax return, including filling in, revising and making corrections.
6. <i>Submittime</i>	Submitting or lodging the final income tax return.
7. <i>Paytime</i>	Paying tax liability for the relevant year, if taxable.
8. <i>Supplytime</i>	Supplying information to a tax agent, if a tax agent was employed.
9. <i>Plantime</i>	Planning financial affairs in order to minimise tax liability.
10. <i>Helptime</i>	Free help from someone else to do or assist the completion of tax returns.

The total amount of time spent was then converted to a monetary figure by multiplying it with hourly rates before adding it to the monetary costs. One of the methods to identify the appropriate rate was to ask the respondents to estimate the value of their time per hour. This approach is referred to as the individual's own valuation of time.⁴³ About 20 percent of respondents did not estimate their value of time; these were treated as missing values and imputed with the average value based on their range of annual income.

Three values of hourly wage rate, namely, the average values reported by respondents, the median value and the author's calculation value were used to increase the credibility of reporting the compliance costs estimation. The author's calculation replaced the market value as suggested by Evans et al. (1997, pp. 38-40). The market value could not be used since the rate was not available publicly in Malaysia as at 31 May 2012. The calculation by the author was based on available economic information such as total population for 2010, income per capita and total workforce. To eliminate the extreme values that were understated or overstated (outliers), the Winsorisation technique at 10 percent quartile was used.⁴⁴

⁴³ More details on valuation of time are discussed in Section 3.4.3, Chapter 3.

⁴⁴ Winsorisation is the transformation of statistics by limiting extreme values in the statistical data to reduce the effect of possibly spurious outliers. It is named after the engineer-turned-biostatistician Charles P. Winsor (1895–1951). The distribution of many statistics can be heavily influenced by outliers. A typical strategy is to set all outliers to a specified percentile of the data; for example, a 90% Winsorisation would set all data below the 5th percentile to the 5th percentile, and data above the 95th percentile to the 95th percentile. Winsorised estimators are usually more robust to outliers than their more standard forms, although there are alternatives, such as trimming, that will achieve a similar effect (National Institute of Standards and Technology, 2003).

Compliance costs for this study were reported at a disaggregate level. This means that the estimation of compliance costs could not be generalised to the whole population of personal taxpayers. Therefore, the calculation of compliance costs as a percentage of personal income tax revenue and as a percentage of GDP that is usually reported in compliance costs studies was not the main focus in this study. For the general purpose of comparing the level of compliance costs for PIT in Malaysia, rough calculations on total compliance costs and total compliance costs as a percentage of PIT revenue and GDP were made, but they have to be interpreted with caution.

4.5.6 Measuring Personal Taxpayers' Time

In this study, the valuation of time uses three methods: (1) the average reported values by respondents; (2) the average of median values to make better estimation of compliance costs and to overcome overstated reported values; and (3) the national wage rate calculated by the author, as a cross-check value to increase the validity of taxpayers' own valuation of time. The author's calculation is done to replace the unavailability of the average wage rate in Malaysia at the time of writing of this thesis. As the psychological costs were not the interest of the present study, a question related to the value that a respondent is willing to pay in order to get rid of all compliance costs was not included in the questionnaire. Respondents for the present study were asked only to estimate their hourly wage rate, both for employed or self-employed taxpayers, with the extreme values being trimmed using the Winsorisation technique. This technique is quite similar to that of Pope et al. (1990, p. 34) who limited the maximum value to a hundred dollars and Allers (1994, p. 54) who corrected any extreme values.

4.5.7 Measuring Costs Difference

The difference between compliance costs for e-filers and manual filers was measured through two methods. The first was to compare compliance costs between respondents who used e-filing and those who used manual filing. Costs included time spent, money spent and total compliance costs. The second method compared the time spent within the e-filing group before and after using the e-filing system.

Respondents who used e-filing and had previous manual filing experience were asked to indicate whether the time spent for nine filing activities under the e-filing system was less, more, or about the same as for manual filing. They were also asked to state the percentage of difference if they indicated the time was less or more. The average time spent for each activity was calculated for both filing methods to measure the difference. Having explained the measurements used in this study, the next section explains the procedures undertaken for data analysis.

4.6 Data Analysis

4.6.1 Overall Approach

This section explains the statistical analysis procedures carried out in order to answer the research questions. A statistical software known as SPSS Statistics Version 18 was used to analyse the survey data collected. This section presents a discussion on data analysis procedures taken to determine the completeness and adequacy of data for further analysis into two categories following the main research questions: (1) the e-filing compliance costs, and (2) the e-filing usage behaviour. The discussion includes a focus on the data screening and data analysis procedures performed for items to answer both main research questions. The procedures for response bias and response representativeness are also discussed at the end of this section. The next sub-sections explain the data screening procedures, followed by the main data analysis according to the two main research questions.

4.6.2 Data Screening

In this study, all the data went through data screening analysis and testing for normality to ensure that all the data was correct and to determine which data analysis procedure (parametric or non-parametric analysis) was more suitable to perform for inferential statistics. For the purpose of data screening, three tests were carried out: test of accuracy of data entry, missing value analysis, and outliers. Two steps were taken to check the data entry accuracy for all the data entered. First, descriptive analysis was utilised to detect the missing values and out-of-range numbers. Manual checking and matching of the data file in SPSS Statistics with the questionnaires were then carried out for suspicious data.

Missing value analysis was performed using the missing data analysis function in SPSS Statistics Version 18. Missing data of up to ten percent is considered not large and unlikely to be problematic in the interpretation of the results from studies (Cunningham, 2010, p. 7). However, if the missing data is more than ten percent and up to 25 percent, the missing data can be removed or imputed to maintain the number of cases. The imputation can be done using the expectation-maximisation (EM) algorithm in SPSS Statistics, provided that the missing values are quantitative and are not missing in any systematic pattern (Cunningham, 2010, p. 7). Missing values can also be imputed using known values or calculated replacement values; that is, mean substitution or regression imputation (Hair et al., 2006, pp. 60-61).

The EM method of data imputation is far more consistent and accurate in predicting parameter estimates than methods such as list-wise deletion (Cunningham, 2010). The EM imputation is valid for missing values which are missing at random (MAR), if not missing completely at random (MCAR). The missing values are MAR, if Little's MCAR X^2 statistics generated by the EM analysis are not significant at alpha level of 0.001 (p more than 0.001). This method was used to impute missing values for data from Section D of the questionnaire (statements on determinants of e-filing usage behaviour) given that the data was in quantitative/metric form and MCAR. Thirty-three cases with high missing values (more than 25 percent) were deleted prior to imputation as they were non-random. Respondents who did not answer this section were mainly those who did not use the e-filing system.

However, for Section C (compliance costs), the EM method was not used because respondents who did not answer most of the items in this section (e.g. time spent activities) were treated as though they did not incur any costs for the items (not a missing value). This treatment is similar to the approach by Abdul-Jabbar (2009). In addition, missing values of average hourly wage rate (used to value the time spent), were imputed using known values (i.e. annual gross income) from Question 10 of the questionnaire. There was no imputation done to Sections A and B of the questionnaire as most of the data was not quantitative in nature.

Outliers are “observations with a unique combination of characteristics identifiable as distinctly different from the other observations” (Hair et al., 2006, p. 73). Outliers

are to be examined to determine their type of influence. There are four types of outliers (Hair et al., 2006, pp. 73-74):

1. Outliers that arise from a procedural error, such as data entry error or a mistake in coding. They can be detected in data screening or, if overlooked, can be deleted or recorded as missing values.
2. Outliers that are extraordinary events. If it fits the objective, the outlier can be retained.
3. Outliers that are extraordinary observations for which the researcher has no explanation. They may be retained if the researcher feels they represent a valid element of the population.
4. Outliers that are observations falling within the normal range of values in each of the variables, but are unique in their combination of values across the variables. In this case, the researcher should retain the observation unless there is evidence that the observation is not of valid members of the population.

Outliers for compliance costs estimation items and the e-filing usage behaviour items were treated differently. Although outliers for both items were retained, outliers for compliance costs, which may be over-estimated or under-estimated by the respondents, were dealt with the Winsorisation technique. On the other hand, outliers for e-filing usage behaviour were retained as they were, because there was no evidence that the observation was not of the valid member of the population. The researcher was of the opinion that the outliers existed because of different perceptions from users and non-users regarding the e-filing system.

Data for compliance costs and e-filing usage behaviour was tested for normality assumptions to determine which data analysis (parametric or non-parametric) was suitable. The Kolmogorov-Smirnov and Shapiro-Wilk tests were not employed in determining the normality due to sensitivity of the test to large data (more than 100), which was likely to produce a significant value although the skewness and kurtosis were not too different from normal (Field, 2009, p. 139; Pallant, 2011, p. 63).

According to Tabachnick and Fidell (1996, p. 73), if the sample is large, it is better to look at the shape of the distribution rather than using the formal inference tests. If the skewness and kurtosis values were not far from 0, then the distribution can be

accepted as normal. Skewness and kurtosis values of +/-1 are considered very good for most psychometric uses, but +/-2 is also acceptable (Cutting, 2011). Hair, Money, Samouel, and Page (2007, p. 321) suggest that skewness values of smaller than -1 or more than +1 are too skewed, and kurtosis values of smaller than -3 or larger than +3 are too flat or too peaked respectively. Suggestions by Hair et al. (2007) on skewness and kurtosis values for the determination of normality was followed. After all the data screening and assumption tests were fulfilled, data analysis was performed accordingly. The following sub-sections explain the steps in the main data analysis to achieve the research purposes.

4.6.3 Determinants of E-Filing Usage Behaviour

4.6.3.1 Introduction

Descriptive statistics and non-parametric tests for inferential statistics were carried out to describe the profile of respondents and to see if there were any relationships between demographic variables and the use of e-filing. After that, factor analysis was carried out before the regression analysis was performed. A logistic regression analysis was utilised to identify the determinants that significantly explain the e-filing usage behaviour.

Items on determinants of e-filing usage behaviour in Section D of the questionnaire, in the form of five-point Likert scales, were treated as intervals following precedence and generally accepted norms which allowed for multiple item measures to be used in parametric analysis. Borgatta and Bohrnstedt (1981, p. 29) state that “most of central constructs in the social sciences are conceptualised as continuous, and their distributions are such that the application of parametric statistics to their analyses will not result in seriously biased estimates. If the variables are continuous, they must also by definition, be interval”. The factor analysis and logistic regression used in this study are explained below.

4.6.3.2 Factor Analysis and Reliability Test

In Section D of the questionnaire, respondents were asked to indicate their level of agreement with 22 statements/items concerning the e-filing system using a five-point

Likert scale (1=Strongly disagree to 5=Strongly agree).⁴⁵ Factor analysis was used to classify the items into smaller groups of the same underlying factors. An EFA with a Principal Component Analysis (PCA) was conducted on 22 items with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis. The KMO value was 0.930, which was excellent according to Field (2009) and all KMO values for individual items were more than 0.8, which was well above the acceptable limit of 0.5 (Field, 2009). Bartlett's test of sphericity also revealed the significant value of 0.0000, which indicated that correlations between items were sufficiently large for PCA.

The output from factor analysis indicated that the majority of the correlation had values between 0.3 and 0.8, which indicated that the data was suitable for factor analysis. Two pairs of variables that had values of more than 0.8 (0.83 and 0.81), indicating very high correlations and potential multicollinearity problems (Field, 2009, pp. 224 & 648), were combined together to reduce the extreme correlation as suggested by Field (2009). Two variables that had correlations of less than 0.3 for all or most of the other variables were deleted from further analysis (see Appendix J for correlation matrix before deletion and combination of items).

After the removal and combination of variables which had correlation values of less than 0.3 or more than 0.8, factor analysis was rerun to obtain eigenvalues for each component in the data. Using Jolliffe's (1986, 2002) method,⁴⁶ four components were extracted and in combination explained 72.75 percent of the variance. The components were quite similar to those reported in previous literature, although some of them were combined together by the factor analysis (for example *PU*, *PEOU*, and *attitude*). Given the findings from previous studies and Jolliffe's method on four components, this is the number of components that were retained in the final analysis (see Appendix K for the correlation matrix after deletion and combination of items).

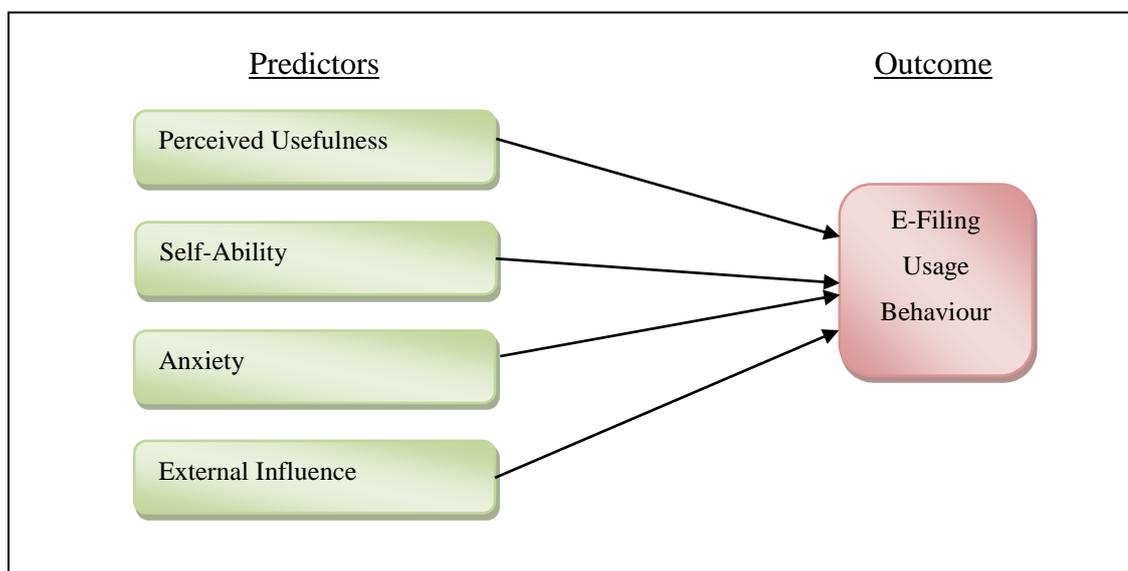
The items clustered on the same components suggested that component 1 represented

⁴⁵ Refer to Table 4.1 in Section 4.5.3 for a full statement of each item.

⁴⁶ Three methods to establish the number of factors to retain from factor analysis were suggested by Field (2009, pp. 639-641). The first is using Kaiser's method, where factors/components with eigenvalues greater than 1 only will be retained. The second is using a scree plots graph, where factors extracted are based on plots at the point of inflection of the curve. The third is using Jolliffe's (1986, 2002) method, where factor extraction is based on eigenvalues greater than 0.7 instead of 1 in Kaiser's method. Jolliffe argues that Kaiser's method is too strict. This study utilised the final method as it produced more logical factors and was more similar to previous studies.

perceived usefulness, component 2 *self-ability*, component 3 *anxiety* and component 4 *external influence*. Values of communalities for most variables were found to be above 0.6 which means acceptable values as suggested by Hair et al. (2006, p. 119). Component 1 was a combination of perceived usefulness, perceived ease of use and some attitude from the original model. Previous research by Lean et al. (2009) that investigated the acceptance of e-government in Malaysia also found that items for *PU* and *PEOU* were combined through factor analysis. The revised model is depicted in Figure 4.2.

Figure 4.2: Revised Model of E-Filing Usage Behaviour



The reliability test using Cronbach's alpha values indicated that all the components had high internal consistency. The Cronbach's alpha values for the variables ranged between 0.78 and 0.92, which were well above the acceptable value of 0.70 (Nunnally & Bernstein, 1994; Field, 2009, p. 675). According to DeVellis (2003, pp. 95-96), values below 0.60 are unacceptable, values between 0.60 and 0.64 are undesirable, values between 0.65 and 0.69 are acceptable, values between 0.70 and 0.74 are good, values between 0.75 and 0.80 are very good, and values over 0.80 are respectable. The detailed results on factor loadings after rotation, communalities and Cronbach's alpha values for each component or item are shown in Table 4.4.

Table 4.4: Rotated Component Matrix (N=209)

Component	Items ^a	Code	Factor Loading	Communalities (Extraction)	Cronbach's Alpha
<i>Perceived Usefulness</i>	Quick	PU1	0.82	0.75	0.91
	Useful	PU2	0.78	0.75	
	Clear	PU3	0.73	0.75	
	Savecost	PU4	0.72	0.63	
	Easy	PU56	0.63	0.74	
	Like	PU7	0.61	0.81	
	Support	PU8	0.53	0.52	
	Refund	PU9	0.47	0.52	
	<i>Self-Ability</i>	Nohelp	SA1	0.80	
Knowledge		SA2	0.75	0.78	
Resource		SA3	0.67	0.75	
<i>Anxiety</i>	Hesitate*	FOA1	0.89	0.88	0.89
	Nervscare*	FOA23	0.79	0.79	
	Intimidate*	FOA4	0.76	0.79	
<i>External Influence</i>	Family	EI1	0.85	0.72	0.78
	Colleague	EI2	0.77	0.76	
	IRBM	EI3	0.54	0.63	

Note: *These items were reverse-coded for the purpose of factor analysis to get positive values.

^a Please see Table 4.1 in Section 4.5.3, Chapter 4 for details of the statements for each item.

4.6.3.3 Logistic Regression

Field (2009, p. 789) defines logistic regression as “a version of multiple regression in which the outcome is a categorical variable”. Specifically, it is used to explain the relationship between one dependent binary variable and one or more continuous (interval or ratio scale) independent variables. Although discriminant analysis also tests for categorical dependent variables, logistic regression is more preferable when the dependent variable has only two groups (binary). The logistic regression is a more popular test than discriminant analysis largely for the two reasons. The first reason is that it does not require multivariate assumptions to be fulfilled such as normality, homoscedasticity (equal level of variance) and linearity (Tabachnick & Fidell, 1996, p. 575), and the second is because it is similar to multiple regression analysis, which is easier to interpret than discriminant analysis (Hair et al., 2006, P. 355).

As a result of the flexibility of logistic regression in terms of assumptions and the suitability for two groups of dependent variables, logistic regression analysis was utilised to answer major research question B. In this study, the dependent variable was the e-filing actual usage behaviour, which was either “used” or “did not use”

(binary). Respondents who used e-filing were coded as “1” and those who did not use the system were coded “0”. On the other hand, the independent variables were perceptions on factors in the form of five-point Likert scale responses (continuous). Based on factor analysis, four independent variables, named as *perceived usefulness*, *anxiety*, *external influence* and *self-ability*, were tested against the dependent variable.

There are two measures to test the overall model for goodness-of-fit (Hair et al., 2006, p. 372; Field, 2009, pp. 267-271). The first is the chi-square test for the change in the log likelihood (-2LL) value. Using this test, the smaller -2LL value indicates better model fit. The second measure is the Hosmer and Lemeshow chi-square test. Using this measure, the model is considered fit when the *p*-value for the Hosmer and Lemeshow chi-square is significant ($p < 0.05$). The value is shown in an omnibus tests table in SPSS output. The Wald statistic, on the other hand, assesses the contribution of an independent variable. The independent variable is assumed to make a significant contribution to the dependent variable if the coefficient is significantly different from zero (greater Wald statistic).

There are several methods that can be used in logistic regression using SPSS, including the forced entry method and stepwise method (Field, 2009). In the forced enter method, all variables are included in the regression model in one block and parameter estimates are calculated for each block. In the stepwise method, researchers can select either a forward or backward stepwise method. The forward stepwise method starts with a constant variable and adds independent variables one by one until no independent variables have a significant score statistic. The backward stepwise method is the opposite of the forward method. It includes all independent variables first and then eliminates non-significant variables from the list one by one. This study employed the forward stepwise method because it was not the aim of the study to test an established previous model.

Finally, to identify the independent variables/predictors that significantly predicted the dependent variable/outcome, the output table labelled as “variables in the equation” should be scrutinised. An independent variable with a significant value ($p < 0.05$) is a significant variable that can explain the dependent variable. In addition, the change in odds ratio (or Exp(B) in the SPSS output) is crucial to interpret. If the

value of the change is greater than one, it indicates the positive relationship between the independent and dependent variables. Otherwise, if the value is less than one, it indicates the negative relationship between independent and dependent variables (Field, 2009, p. 271).

4.6.4 Compliance Costs Estimation

Compliance costs consist of time and money costs. Section 4.5.5 explained the measurement of total compliance costs. After the results of the estimations of compliance costs were produced, several statistical tests were conducted to investigate the effect of e-filing on compliance costs (by comparing the e-filing and manual filing compliance costs) in statistical terms. Before any statistical analysis was performed, it was crucial to examine the condition of the data – specifically, whether it was normally distributed or not – to determine the type of analysis that was appropriate, whether parametric or non-parametric tests.

Based on the normality test, most of the data for compliance costs estimation was not normally distributed ($p < 0.05$). Therefore, non-parametric tests were employed for inferential statistics. Field (2009, p. 790) defines non-parametric tests as “a family of statistical procedures that do not rely on the restrictive assumptions of parametric tests. Particularly, non-parametric tests do not assume that the sampling distribution is normally distributed”. In this study, Mann-Whitney U and Kruskal-Wallis tests were employed in comparing two independent groups and several independent groups, respectively. Pearson’s chi-square was used to see whether there was a relationship between two categorical variables.

4.6.5 Non-Response Bias

A non-response bias test was performed to ensure that there was no bias in the samples. Benke and Street (1992) highlight that the popular approach to prove non-response bias is by comparing early responses to later responses or first responses to responses generated after follow-ups. If there are no significant differences between the two groups of responses, it can be assumed that there is no problem of non-response bias.

4.6.6 Response Representativeness

One method of proving response representativeness is by comparing the demographic background of the responses with the entire population (McInnis, 2006). In this study, the responses were considered representative of an entire population of Malaysian personal taxpayers if they reflected a similar distribution in terms of demographic criteria such as gender, age, location, type of employment and filing methods.

4.7 Methodological Assumptions

According to Fraenkel and Wallen (2000, p. 661), an assumption is “any important assertion presumed to be true but not actually verified”. In this study, the researcher assumed participants would provide truthful and accurate answers to the questions. Also, it was assumed that all the respondents answered the same questions, which meant the respondents interpreted the questions in similar ways. In addition, the current study assumed that all PIT payers have common access to the internet and that this is the case in identifying factors that influence the take-up rate of e-filing.

4.8 Chapter Summary

This chapter discussed the research methods adopted for this study. Outlined in this chapter were the research approach and justification for the selected approach, survey research design and measurement issues. Also outlined were the data analysis procedures, which included non-response bias and response representativeness, and methodological assumptions. The data was mainly collected from a postal questionnaire and divided into two main sections, namely e-filing behaviour and compliance costs.

The data collected was analysed using SPSS Version 18. A logistic regression analysis was used for the determination of factors that affect the e-filing usage behaviour and non-parametric tests were used to investigate the statistical effect of e-filing on compliance costs. Test of non-response bias and response representativeness were also carried out to determine the generalisability of the results from the present study. Next, Chapter 5 reports the results on the analysis of taxpayers' questionnaire responses before the results for the determinants of the e-

filing usage behaviour and the compliance costs are reported in Chapters 6 and 7, respectively.

Chapter 5

Analysis of Taxpayers' Questionnaire Responses

5.1 Introduction

This chapter presents the analysis of taxpayers' responses to the survey questionnaire used in this study.⁴⁷ First, the response rates are presented. After that, the respondents' demographic profiles are reported to understand the background of respondents in this study. This is followed by the analysis of the results on the response level of IT and tax knowledge. Next, the response representativeness analyses are presented in order to examine whether the results from this study could be generalised to the whole population or caution should be made in interpreting this study's results. Finally, the results on non-response bias are presented to further determine the response representativeness.

5.2 Response Rates

The researcher was fortunate to receive an appropriate number of returned questionnaires despite the issue of insufficient postage on the return envelopes. Out of 2,600 questionnaires sent, a total of 242 usable questionnaires were returned, which represents 9.7 percent of the net sampling frame. Even though the response rate can be considered low compared to other mail survey research (see, for example, Abdul-Jabbar & Pope, 2008b with a 16 percent response rate; Palil & Lymer, 2009 with a 19.5 percent response rate), the number of usable responses was considered adequate to describe the PIT payer population in Malaysia with a total number of almost 4.8 million for 2009 as argued by Fowler (1993, p. 14). The number is also adequate for thorough statistical data analysis.

For multivariate analysis, sample size affects the probability power of detecting a statistically significant result at a specified significant level and the generalisability. According to Hair et al. (2006, p. 196), the minimum requirement for a sample size is five observations for every independent variable. However, 15 to 20 observations per independent variable are needed for a desirable sample size.

⁴⁷ Refer to Appendices G and H for sets of questionnaire in Malay language and English respectively.

From this study's final model of e-filing usage behaviour, there are four independent variables,⁴⁹ which make the desired sample size (according to Hair et al. (2006)) of between 60 and 80 observations only. Further, the compliance costs estimation consisted of time and money costs with time costs divided into ten categories (or independent variables) and money costs into three categories.⁵⁰ Altogether, the 13 variables for compliance costs estimation therefore theoretically needed at least 65 responses or between 195 and 260 observations to be more desirable as suggested by Hair et al. (2006). Thus, overall, the 242 usable responses were considered adequate for a systematic statistical analysis. Detailed information on the number of gross samples, unusable samples, net sample frame and usable responses is presented in Table 5.1 .

Table 5.1: Sample Frame and Response Rate

	Number	Percentage (%)
Gross sample frame	2,600	
(-) Returned due to invalid address	78	
(-) Unusable questionnaire*	29	
Net sample frame	2,493	100.0
Usable responses	242	9.7

Note: *Unusable responses were due to too many items omitted and non-filing (those who did not lodge the return in the survey year).

The total number of usable responses was included in the analysis of compliance costs (results for this analysis are presented in Chapter 6). However, through missing value analysis, it was discovered that there were 33 respondents from the sample who did not completely answer all the questions in Section D of the questionnaire (questions related to perceptions towards e-filing and pre-filing). As a result, the 33 cases were removed from the analysis of determinants of e-filing usage behaviour. This left a total of 209 cases to be analysed for determinants of e-filing usage behaviour. These results are presented in the next chapter.

⁴⁹ Refer to Figure 4.2 in Section 4.6.3.2, Chapter 4.

⁵⁰ Refer to Section 4.5.5, Chapter 4.

5.3 Demographic Profile of Respondents

5.3.1 Gender and Marital Status

The large majority of respondents who were PIT payers responded in the Malay language (about 70 percent) and the remaining responded to the English version (about 30 percent). This reflects that the Malay language, as a national language, is used by the majority of Malaysians although Malaysia is a multi-racial community and Malaysians are free to use any language for everyday communication. The result is in contrast to Abdul-Jabbar (2009) who studied income tax compliance costs and compliance behavior among small and medium enterprises in Malaysia. He found that the majority of respondents responded to the English version. The difference might be because his respondents were business people who mainly use English in their daily communication, while this study sample was comprised mainly of non-business people (salaried taxpayers).

In general, more than 60 percent of the respondents in this study used the e-filing system ($N=147$) in preference to manual filing ($N=95$). Analysis of the users of the e-filing system indicates that about 61 percent of the e-filers were male and 39 percent were female. Horizontal comparison within the gender groups indicates that the majority of both genders preferred e-filing than manual filing (male = 61 percent, female = 59 percent). The female group was slightly higher than the male group among those who used manual filing (male = 38 percent of total male, female = 41 percent of total female). In terms of percentage, the results suggest that the preference for e-filing among males was somewhat more dominant than among females. Details on the gender and marital status profile of the respondents are displayed in Table 5.2.

Table 5.2: Profile of Respondents – Gender and Marital Status

Item	Total (N=242)		E-Filing (N=147)		Manual Filing (N=95)			
	Number	Percent	Number	Percent within E-Filing	Percent within Item	Number	Percent within Manual Filing	Percent within Item
Gender:								
Male	147	60.7	91	61.9	61.9	56	58.9	38.1
Female	95	39.3	56	38.1	58.9	39	41.1	41.1
Marital status:								
Single	36*	14.9	27	18.4	75.0	9	9.5	25.0
Married	201	83.1	118	80.3	58.7	83	87.4	41.3
Other	4*	1.6	1	0.7	25.0	3	3.2	75.0
Not mentioned	1	0.4	1	0.7	100.0	0	0.0	0.0

Note: *The interpretation of results for these categories should be undertaken with caution due to the low number of respondents.

As shown in Table 5.2, 83 percent of respondents were married (N=201). Both single and married respondents indicated that they preferred e-filing to manual filing. Specifically, 75 percent of single respondents chose to e-file, compared with 59 percent of married respondents. For manual filers, it can be concluded that respondents with married status constituted the majority. The results suggest that single respondents accepted e-filing very well compared to married persons. This is probably due to single taxpayers having simpler tax affairs than married taxpayers. In addition, single taxpayers in this study were probably young in age as research indicates that younger people prefer technological systems compared to older people (Czaja & Sharit, 1998, p. 329).

5.3.2 Age and Employment Status

In terms of age, the majority of the respondents came from the age group of 25 to 44 (about 42 percent) and 45 to 54 (about 40 percent). This was followed by the 55 to 64 age group (about 11 percent), 65 and above (4.5 percent), and 24 and below (1.7 percent). The distribution is reasonable because the compulsory retirement age for civil servants in Malaysia is between 55 and 60 (Jabatan Perkhidmatan Awam, 2011). Analysis of the respondents by age indicates that older respondents (aged 65 and above) preferred to use manual filing (almost 73 percent from the total of the group), while the majority of younger respondents preferred e-filing. However, among those aged between 45 and 64 there was just a small difference between the percentage of e-filers (56 percent) and manual filers (44 percent). This indicates age did not matter and that there were other factors that influence the taxpayers in this

age group to use or not to use the e-filing system. Details of the distribution of respondents according to age groups and filing methods are shown in Table 5.3.

Table 5.3: Profile of Respondents – Age and Employment Status

Item	Total (N=242)		E-Filing (N=147)			Manual Filing (N=95)		
	Number	Percent	Number	Percent within E-Filing	Percent within Item	Number	Percent within Manual Filing	Percent within Item
Age:								
24 and under	4*	1.7	4	2.7	100.0	0	0.0	0.0
25 to 44	101	41.7	69	46.9	68.3	32	33.7	31.7
45 to 54	97	40.1	54	36.7	55.7	43	45.3	44.3
55 to 64	27*	11.2	15	10.2	55.6	12	12.6	44.4
65 and above	11	4.5	3	2.0	27.3	8	8.4	72.7
Not mentioned	2	0.8	2	1.4	100.0	0	0.0	0.0
Employment:								
Employed	181	74.8	114	77.6	63.0	67	70.5	37.0
Self-employed	53	21.9	30	20.4	56.6	23	24.2	43.4
Other	8*	3.3	3	2.0	37.5	5	5.3	62.5

Note: *The interpretation of results for these categories should be undertaken with caution due to the low number of respondents.

As presented in Table 5.3, about 75 percent of total respondents were employed and 22 percent were self-employed. Another three percent were in the “other” category, namely retired people. Most of the employed respondents used e-filing (63 percent). Although more than half of self-employed respondents utilised e-filing, a higher proportion of self-employed respondents (43.4 percent) used manual filing than employed respondents (37 percent). The findings suggest that there is still a large portion of employed and self-employed taxpayers who can be persuaded to use e-filing if the take-up rates of e-filing are to be increased.

5.3.3 Ethnicity and Geographical Area

Malaysia is a multi-cultural country with three main ethnic groups: Malay, Chinese and Indian. Malay is the largest ethnicity followed by Chinese and Indian.⁵¹ In this study, almost half of the respondents were of Malay ethnicity. This was followed by Chinese (38 percent), Indian (7 percent) and others (6 percent). Analysis of the ethnicity groups shows that the majority of Malays used e-filing (72 percent). Among the Chinese respondents, the users of e-filing and manual filing were about 50-50. On the other hand, the majority of Indian respondents used manual filing (63

⁵¹ Refer to Section 1.3 in Chapter 1 for details on the percentage population distribution according to major ethnic groups.

percent), compared with those using e-filing (38 percent). The findings indicate that e-filing is widely accepted by Malays in comparison with other ethnic groups in Malaysia. The Chinese and Indian groups are thus rather resistant towards e-filing. Reasons for this situation are examined further by the model for determinants of e-filing usage behaviour.⁵² Details on the respondents' ethnicity are shown in Table 5.4.

Table 5.4: Profile of Respondents – Ethnicity and Location

Item	Total (N=242)		E-Filing (N=147)		Manual Filing (N=95)			
	Number	Percent	Number	Percent within E-Filing	Percent within Item	Number	Percent within E-Filing	Percent within Item
Ethnicity:								
Malay	119	49.2	86	58.5	72.3	33	34.7	27.7
Chinese	93	38.4	48	32.7	51.6	45	47.4	48.4
Indian	16*	6.6	6	4.1	37.5	10	10.5	62.5
Others	14*	5.8	7	4.8	50.0	7	7.4	50.0
Location:								
Northern ^a	60	24.8	36	24.5	60.0	24	25.3	40.0
Klang Valley ^b	87	36.0	53	36.1	60.9	34	35.8	39.1
Southern ^c	31	12.8	20	13.6	64.5	11	11.6	35.5
Eastern ^d	31	12.8	17	11.6	54.8	14	14.7	45.2
Others ^e	31	12.8	21	12.9	67.7	12	12.6	38.7
Not mentioned	2	0.8	2	1.4	100.0	0	0.0	0.0

Note: ^aPerlis/Kedah/Penang/Perak, ^bWilayah Persekutuan/Selangor, ^cNegeri Sembilan/Melaka/Johor, ^dPahang/Kelantan/Terengganu, ^eMainly Sabah and Sarawak.

*The interpretation of results for these categories should be undertaken with caution due to the low number of respondents.

In terms of geographical area, the data for this study was derived from all over Malaysia. In total, the majority of respondents were from the Klang Valley (36 percent). This was followed by the northern region (25 percent) and the remaining areas in Malaysia with the same percentage of about 13 percent. Comparison within the location areas indicated that e-filing outperformed the manual filing in every location. Eastern states (Pahang, Kelantan and Terengganu), however, showed a narrower percentage difference between e-filing users (55 percent) and manual filing users (45 percent) as compared to other regions. Users of e-filing were mainly from the Klang Valley area (36 percent), followed by the northern region (25 percent), southern region (12 percent), others (13 percent) and eastern region (12 percent). Details of the respondents' profiles by location are shown in Table 5.4.

⁵² Refer to Figure 4.2 in Section 4.6.3.2, Chapter 4.

5.3.4 Annual Income and Tax Liability

In terms of annual income, the majority of this study's respondents (43 percent) fell within the RM36,000 to RM69,999 category. This also fell within the national average household income of between RM3,624 and RM5,011 per month for 2009 (Department of Statistics Malaysia, 2010, p. 64) or between RM43,488 and RM60,132 per annum. It is found that the majority of e-filing users were those having annual income of below RM150,000 as compared to those with higher income. In contrast, those with no tax liability preferred to use manual filing (37 percent) compared to e-filing (21 percent). Details of the distribution of respondents according to annual income and tax liability categories are presented in Table 5.5.

Table 5.5: Profile of Respondents – Annual Income and Tax Liability

Item	Total (N=242)		E-Filing (N=147)		Manual Filing (N=95)	
	Number	Percent	Number	Percent	Number	Percent
Annual Income:						
Less than RM36,000	79	32.6	43	29.3	36	37.9
RM36,000- RM69,999	105	43.4	62	42.2	43	45.3
RM70,000- RM149,999	45	18.6	34	23.1	11	11.6
RM150,000 or more	13*	5.4	8	5.4	5	5.3
Tax Liability:						
No tax	66	27.3	31	21.1	35	36.8
Less than RM1,000	77	31.8	48	32.7	29	30.5
RM1,000- RM2,999	39	16.1	26	17.7	13	13.7
RM3,000- RM6,999	21*	8.7	11	7.5	10	10.5
RM7,000- RM13,999	9*	3.7	8	5.4	1	1.1
RM14,000- RM27,999	15*	6.2	12	8.2	3	3.2
RM28,000 or more	10*	4.1	6	4.1	4	4.2
Not mentioned	5	2.1	5	3.4	0	0.0

*The interpretation of results for these categories should be undertaken with caution due to the low number of respondents.

5.3.5 Level of Education, Tax and Information Technology Knowledge

Overall, about 40 percent of the respondents were in the lowest category of academic qualification (up to Sijil Tinggi Pelajaran Malaysia (STPM)). This was followed by graduate level (32 percent), diploma level (15 percent) and postgraduate level (12 percent). The majority of the group up to the STPM level were manual filers. In the higher academic education levels, the percentages for the e-filing category were higher than the manual category.

In general, the majority of personal taxpayers in Malaysia perceived that their level of tax knowledge and IT knowledge were average. In terms of tax knowledge, about

25 percent of respondents from the e-filing group and 20 percent from the manual filing group indicated that they had good or excellent tax knowledge. However, more respondents from the manual filers group perceived themselves as having poor or fair levels of tax knowledge (21 percent) compared with their counterparts (10 percent only).

The findings indicate that respondents who perceived themselves as good or excellent regarding the level of IT and tax knowledge were more likely to use the e-filing system than manual filing and vice versa. Details of e-filers and manual filers according to the level of general education, IT knowledge and tax knowledge are shown in Table 5.6.

Table 5.6: Profile of Respondents – General Education, Tax and Information Technology Knowledge

Item	Total (N=242)		E-Filing(N=147)		Manual Filing (N=95)	
	Number	Percent	Number	Percent	Number	Percent
General Education:						
Up to STPM	98	40.5	52	35.4	47	49.5
Diploma	35	14.5	24	16.3	11	11.6
Graduate	77	31.8	50	34.0	26	27.4
Postgraduate	28	11.6	21	14.3	7	7.4
Not mentioned	4	1.7	0	0.0	4	4.2
Tax Knowledge:						
Poor	23	9.5	4	2.7	7	7.4
Fair	14	5.8	11	7.5	13	13.7
Average	127	52.5	95	64.6	53	55.8
Good	60	24.8	27	18.4	17	17.9
Excellent	15	6.2	10	6.8	2	2.1
Not mentioned	3	1.2	1	0.7	2	2.1
IT Knowledge:						
Poor	11	4.5	7	4.8	16	16.8
Fair	24	9.9	6	4.1	8	8.4
Average	148	61.2	73	49.7	54	56.8
Good	44	18.2	47	32.0	13	13.7
Excellent	12	5.0	12	8.2	3	3.2
Not mentioned	3	1.2	1	0.7	2	2.1

5.3.6 Paid Preparer, Free Helper or Self-Prepared

Overall, about 62 percent of respondents for this study did not use any helper and about 22 percent engaged a free helper. Only about 17 percent of respondents employed a paid preparer. This supports the findings by Sapiei and Abdullah (2008), and indicates that the majority of Malaysian PIT payers prefer to do their tax on their own.

More specifically, about 58 percent of e-filing users and 67 percent of manual filing users did not use any helper in performing their income tax obligations. The percentage of e-filers who involved a free helper (27 percent) was more than double the percentage of manual filers who used a free helper (11 percent). About 19 percent of manual filers hired a paid preparer to deal with their income tax while about 10 percent asked for a free helper. The percentage that employed a paid preparer for e-filers was lower than for manual filers (13.6 percent). The results indicate that e-filers would prefer to ask for free help (about 27 percent) in preference to having a paid preparer (14 percent). This situation may be due to the complexity of the income tax for manual filers who therefore need a professional helper as compared to the e-filers. Details on the respondents' use of paid or free preparers or self-preparation are presented in Table 5.7.

Table 5.7: Profile of Respondents – Method of Preparation

Item	Total (N=242)		E-Filing (N=147)		Manual Filing (N=95)	
	Number	Percent	Number	Percent	Number	Percent
Paid Preparer* only	41	16.9	20	13.6	18	18.9
Free Preparer only	52	21.5	39	26.5	10	10.5
Paid Preparer* and Free Helper	6	2.5	3	2.0	3	3.2
Self-Preparation	149	61.6	85	57.8	64	67.4

Note: *Paid preparer also referred to tax professionals in this thesis.

5.4 Response Representativeness

One method of assessing response representativeness is by comparing the demographic background of the responses with the entire population (McInnis, 2006, p. 90). In this study, the distribution of responses for several categories of data from this study was compared to the personal taxpayer population data (unpublished) by the IRBM (concerning gender, marital status, employment category, state/region, and filing methods)⁵³ and published data from the Department of Statistics, Malaysia (ethnicity, age, and education level) when data was not available from the IRBM. The responses for this study were considered representative of the entire PIT population and national population overall, as the distributions are similar. This technique of distribution comparison was also employed by other tax researchers such as Pope et al. (1990) and Saad (2011).

Overall, comparing the survey responses with the IRBM data on five criteria

⁵³ The data was provided by the IRBM through email communication, 25 March 2011.

indicates no major differences except that this study over-represents the e-filers. Therefore, the results should be interpreted with caution. The following section discusses the result of statistical analysis of those who responded and did not respond which was carried out to identify any non-response bias. Details of the comparison of the IRBM data (YA2008) and the data gathered in this study (YA2009) are shown in Table 5.8.

Table 5.8: The IRBM Taxpaying Population and this Study's Data

Items		IRBM, YA2008 (Percentage)	This Study, YA2009 (Percentage)
Gender:	Male	65.3	60.7
	Female	34.7	39.3
Marital status:	Single	17.0	14.9
	Married	80.4	83.1
	Others	2.6	1.7
	Not mention	0	0.4
Employment:	Employed	75.1	78.1
	Self-employed	24.9	21.9
States Region:	Northern	22.0	24.8
	Klang Valley	38.0	36.0
	Southern	19.0	12.8
	Eastern	8.0	12.8
	Others	13.0	13.6
Filing method:	E-filing	44.7	60.3
	Manual filing	55.3	39.7
TOTAL		100.0	100.0

Source: Unpublished data from the IRBM database for YA2008 (private communication through email, 25 March 2011) and this study's data.

Since the information on ethnicity, age and education groups was not able to be retrieved from the IRBM, they are compared with labour force data available from the Department of Statistics, Malaysia. However, the population of the labour force may be different from the taxpaying population because only those receiving income up to a certain threshold are taxable. The main differences are that this study under-represented the Malay ethnic group, the age group below 24, and the group that had received education up to STPM, and over-represented the 45 to 54 age group, and graduates. Again, this may also be due to the taxable income threshold. Results that compare these groups in later sections should be interpreted with caution. Details of the differences in the representation are shown in Table 5.9.

Table 5.9: A Comparison of National Data and this Study's Data

Items		National Data (Percentage)	This Study (Percentage)
Ethnicity:	Malay	63.1	49.2
	Chinese	24.6	38.4
	Indian	7.3	6.6
	Others	5.0	5.8
Age:	15 to 24*	16.3	1.7
	25 to 44	57.2	41.7
	45 to 54*	19.2	40.1
	55 to 64*	7.4	11.2
	65 and above	N/A	4.5
	Not mention	-	0.8
Education:	Up to STPM*	66.8	37.6
	Diploma	10.6	14.0
	Graduate *	22.6	50.4
	Not mentioned	-	7.0
TOTAL		100.0	100.0

Notes: *In terms of age group, the younger group may have just started to work from a low level position but when a person reaches the 45 to 54 age group, they may be stable in terms of position and income earnings, which means more of the taxable workforce could come from this age group than the below 24. This is also similar to education level: the higher the education level, the greater probability to receive higher taxable income.

Source: National data based on labour force statistics, Malaysia, 2010 and Housing Census of Malaysia 2010 statistics (Department of Statistics Malaysia, 2011b, 2011c).

5.5 Non-Response Bias

Non-response bias was tested because it was not known why some of the respondents chose not to return the questionnaire (Benke & Street, 1992, p. 38). In this study, the non-response bias was tested for both the e-filing usage behaviour determinants and compliance cost results. A *t*-test analysis was performed to compare the responses before reminders were sent (early responses), with responses generated after the reminders (late responses) to test if there was any non-response bias in the samples (Benke & Street, 1992, p. 39). The responses generated after the reminders were used as proxies for non-respondents.

Selected items of perceptions towards the e-filing system were chosen and the means of the items were compared between the early response and late response samples to determine the non-response bias in the determinants of e-filing usage behaviour. There were 155 cases from the early response group and 54 cases from the late response group. In order to decide whether the groups were significantly different from each other, the two-tailed *p*-value was examined. As indicated in Table 5.10, the entire item showed non-significant *p*-values (all items indicated *p*-values >

0.05),⁵⁴ which means that the early response and late response groups were not significantly different. These results suggest that non-response bias was not a concern.

Table 5.10: *t*-Test Results for Early and Late Responses for Selected Items Measuring E-Filing Determinants

Item	Early Responses (N=155)		Late Responses (N=54)		<i>p</i> -Value*
	Mean	SD	Mean	SD	
useful	4.25	0.83	4.04	0.89	0.12
quick	4.19	0.94	4.09	0.92	0.52
savecost	4.05	0.94	3.89	0.98	0.30
colleague	3.61	0.93	3.39	0.94	0.13
knowldg	3.72	0.98	3.57	0.86	0.33
nohelp	3.37	1.17	3.17	1.01	0.26
nervous	2.41	1.10	2.48	1.06	0.69
intimidate	2.28	1.07	2.28	1.17	0.97
intend	4.00	1.07	3.96	1.01	0.83

Note: *The significance level is 0.05. A *p*-value greater than 0.05 indicates a non-significant difference between early and late responses.

To test the non-response bias in compliance costs results, an independent sample Mann-Whitney U test was performed to ascertain the differences between early and late responses. This non-parametric test was used because the data for compliance costs was not normally distributed among the groups. Four major compliance costs items (total time, value of time, total money costs and total compliance costs) were included in the analysis. The results suggest that the distribution of the four items was similar across the early and late responses. Therefore, it can be concluded that non-response bias was not a concern in this study for the analyses of both e-filing usage behaviour determinants and compliance costs. Details of the results for the compliance costs items are shown in Table 5.11.

Table 5.11: Independent Samples Mann-Whitney U Test for Compliance Cost Items, Before and After Reminder Groups

Item	Median		<i>p</i> -Value
	Early Responses (N=155)	Late Responses (N=54)	
Total time	4.83	4.00	0.71
Value of time	20.00	23.00	0.34
Total money costs	8.00	10.00	0.27
Total compliance costs	166.94	256.24	0.44

Note:* The significance level is 0.05; a *p*-value greater than 0.05 indicates non-significant difference between early and late responses.

⁵⁴ The *t*-test compares means of two independent groups. If *p*-values from the *t*-test indicate a value of below 0.05, this indicates that the means are significantly different and if the *p*-value is more than 0.05, this indicates that the means for both groups are not significantly different.

5.6 Chapter Summary

This chapter has analysed the responses to the survey questionnaire used in this study. It was found that the number of usable samples (242) obtained in this study was adequate for valid statistical analysis although the overall response rate was quite low in comparison with similar and recent mail questionnaire survey studies. The overall picture of the respondents of this study was presented in terms of the demographic profiles, which indicated that the respondents were well distributed among the demographic variables.

This chapter also highlighted the results regarding the level of respondents' IT and tax knowledge. These results indicated that e-filers had a better perception of IT knowledge than manual filers. The majority of respondents (either e-filers or manual filers) rated themselves as having an average level of tax knowledge although more manual filers than e-filers indicated their tax knowledge was poor/fair. The results indicated that IT knowledge was more likely to determine the choice of e-filing than the tax knowledge. The results also indicated that the majority of respondents preferred preparing their income tax by themselves instead of using a free or paid preparer.

Finally, although the result on response representativeness was slightly questionable, non-response bias results suggested that the data for this study was free from non-response bias. The next two chapters present the results from the responses outlined in this chapter. It should be noted that both chapters consist of a somewhat different number of respondents, as discussed earlier in this chapter.

Chapter 6

Determinants of E-Filing Behaviour

6.1 Introduction

This chapter presents the results for determinants of e-filing usage behaviour based on the model developed following a review of the literature in Chapter 2. First, the results on the distribution and dispersion of perceptions towards the determinants are presented. This is followed by the results from *t*-test and one-way analyses of variance (ANOVA) on comparisons of the respondents' perceptions of the determinants of e-filing usage behaviour according to selected demographic variables. Finally, results from the logistic regression analysis are introduced, with the emphasis on significant predictors of e-filing usage behaviour. In addition, the results on respondents' perceptions of a pre-filing system are presented before the chapter summary.

6.2 Descriptive Results for Predictors

6.2.1 Introduction

This section presents the results on distribution and dispersion of predictors of e-filing usage behaviour (that is *PU*, *self-ability*, *anxiety* and *external influence*) between respondents who used e-filing (e-filer group) and those who did not use e-filing (manual filer group) to file their income tax returns. Frequency was used to describe the distribution of perceptions regarding the predictor variables among the e-filer and manual filer groups, while mean, median and standard deviation were used to illustrate the dispersion of the respondents' perceptions regarding the predictors of e-filing usage behaviour (Fink, 2003, p. 27).

Values for predictors were the average of the sum from statements measuring the predictors.⁵⁵ For the purpose of descriptive analysis between the groups of e-filers and manual filers, respondents who answered strongly disagree and disagree were merged together as a single category. The treatment was also applied for respondents

⁵⁵ Measurements for each statement used a five-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree).

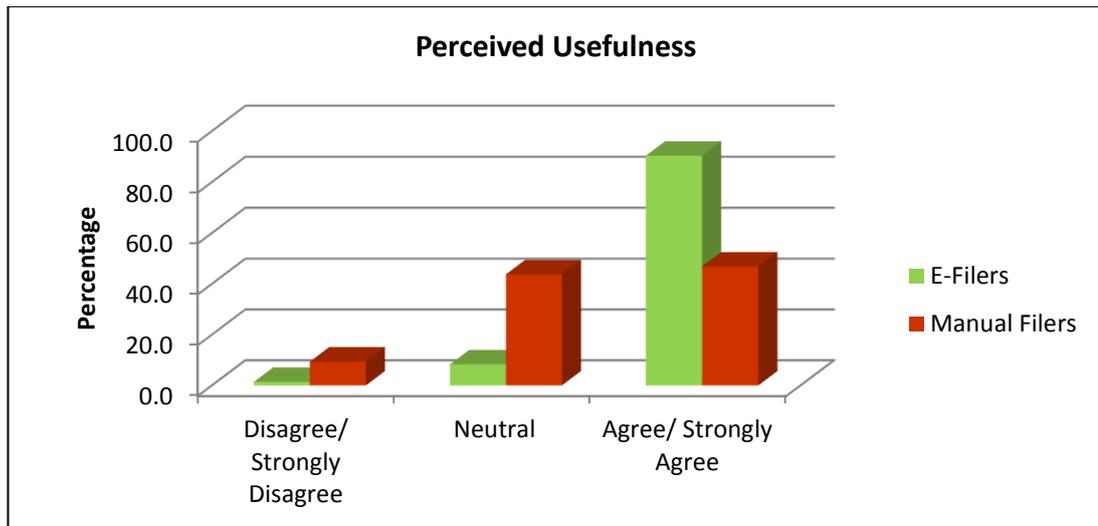
who answered “agree” and “strongly agree”. The neutral responses remained as they were. The recoding was essential in order to address the central tendency problem with low responses in either the “strongly disagree” or “strongly agree” category. A number of previous studies in the taxation field have also used this recoding technique (see, for example, Kasipillai et al., 1999; Torgler, 2007; Abdul-Jabbar, 2009).

6.2.2 Perceived Usefulness

6.2.2.1 Frequency

Using a five-point Likert scale, e-filing was perceived as useful if the percentage showed a higher proportion for the “agree/strongly agree” category and vice versa. The majority of the e-filer group (90.3 percent) indicated that they agreed/strongly agreed with *PU* as a whole. Only about one percent from the e-filer group somewhat disagreed with *PU*. Meanwhile, the manual filers were more dispersed among the disagree/strongly disagree, neutral and agree/strongly agree responses. Although many of them (46.9 percent) fell under the agree/strongly agree category, it should be noted that more than half of the manual filers (53.1 percent) either provided a neutral answer (which indicated that they were unable to provide their opinion) or stated they disagreed/strongly disagreed. This indicates that the e-filing users perceived the e-filing system to be more useful than did the manual filers. The frequency distribution for both the e-filers and manual filers regarding *PU* is depicted in Figure 6.1.

Figure 6.1: Distribution for Perceived Usefulness



6.2.2.2 Mean, Median and Standard Deviation

The mean and median are used to estimate the central tendency of a distribution (Trochim, 2006). Since the statements measuring predictors of e-filing usage behaviour for this study used a five-point Likert scale, the central tendency could be between one and five. A central tendency less than three indicates that the responses were centred to disagree, and a central tendency more than three indicates that responses were centred to agree with the predictors. The majority of means for items measuring perceived usefulness were above four, which indicates that the central tendency for the e-filer group on perceived usefulness items was between agree and strongly agree. This situation is in line with the frequency chart in Figure 6.1 above for the total measure of perceived usefulness, which indicates that more than 90 percent of e-filers fell under the agree/strongly agree category. This also suggests that the e-filers had a better perception of perceived usefulness, especially for PU1 (quick) and PU2 (useful) items. Details on the descriptive statistics for each perceived usefulness item are shown in Table 6.1.

Table 6.1: Mean, Median and Dispersion of Perceived Usefulness for E-Filer Group

Code/Items	N	Min	Max	Median	Mean	SD
PU1-Quick	145	1	5	5.00	4.43	0.798
PU2-Useful	145	2	5	5.00	4.47	0.708
PU3-Clear	145	1	5	4.00	4.17	0.782
PU4-Savecost	145	2	5	4.00	4.24	0.775
PU56-Easy	145	1	5	4.00	4.16	0.733
PU7-Like	145	1	5	4.00	4.28	0.722
PU8-Support	145	2	5	4.00	4.05	0.802
PU9-Refund	145	1	5	4.00	3.83	1.063

Compared to e-filers, the manual filer group was more conservative. The mean values ranged from 3.09 to 3.61, which indicates that the central tendency area for the manual filers group was just above neutral towards agree, but not as strong. Specifically, PU8 (support) was the item with the highest mean. This was followed by PU2 (useful), PU2 (quick) and PU4 (savecost). The results suggest that the manual filers somewhat agreed that the e-filing system was useful although they did not use the system. Table 6.2 illustrates the full results on central tendency and dispersion of perceived usefulness items for the manual filer group.

Table 6.2: Mean, Median and Dispersion of Perceived Usefulness for Manual Filer Group

Items	N	Min	Max	Median	Mean	SD
PU1-Quick	64	2	5	4.00	3.55	0.925
PU2-Useful	64	2	5	4.00	3.58	0.813
PU3-Clear	64	2	5	3.00	3.33	0.778
PU4-Savecost	64	1	5	3.50	3.47	1.083
PU56-Easy	64	1	5	3.00	3.19	0.911
PU7-Like	64	1	5	3.00	3.09	0.955
PU8-Support	64	2	5	4.00	3.61	0.902
PU9-Refund	64	1	5	3.00	3.09	1.109

6.2.3 Self-Ability

6.2.3.1 Frequency

The frequency distribution for *self-ability* is illustrated by a bar chart in Figure 6.2. A majority of the e-filer group (70 percent) was in the upper level of agreement towards *self-ability*. This suggests that the users of the e-filing system believed that they had the ability to use the system. This may be due to their previous experience using the system as indicated in the data reported in Table 6.3, which indicated that more than 95 percent of respondents who used the e-filing system had used the

system more than once.

In contrast, the majority of manual filers (44 percent) indicated that they were in the neutral category for *self-ability*. This suggests that manual filers were unable to rate themselves as having the ability to use the e-filing system but at the same time they also did not want to label themselves as being unable to use the system because they had not yet tried the system. Details on the frequency distribution for *self-ability* and distribution of respondents' first year of using the e-filing system are shown in Figure 6.2 and Table 6.3.

Figure 6.2: Distribution for Self-Ability

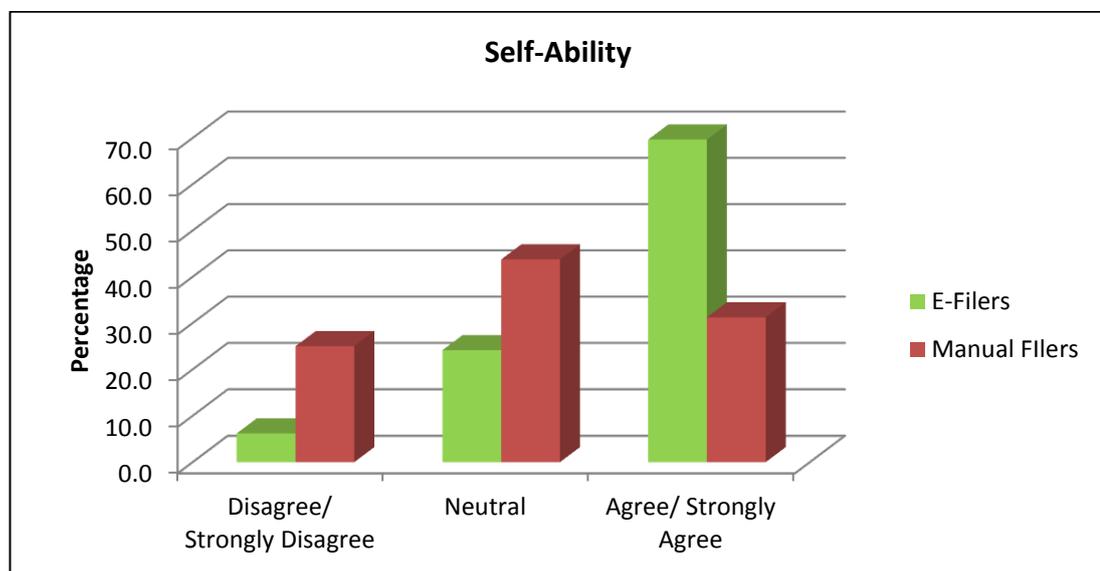


Table 6.3: First Year of using E-Filing System (N=145)

Year Started Using E-Filing	Number	Percentage
2005	11	7.6
2006	17	11.7
2007	55	37.9
2008	42	29.0
2009	15	10.3
2010	3	2.1
Not mentioned	2	1.4

6.2.3.2 Mean, Median and Standard Deviation

The mean scores for items measuring *self-ability* for the e-filer group ranged from 3.57 to 3.93, indicating that the central tendency for the *self-ability* items was “agree”. Similar to perceived usefulness, this shows that the e-filer group had a better perception of their ability to use e-filing than the manual filer group. However, the

mean scores for the manual filer group were less than for the e-filer group (between 2.75 and 3.30), which indicates a lower perception of *self-ability*. This was obvious on item SA1 (nohelp) for which the mean was less than 3.00 for manual filers but more than 3.50 for e-filers. The median, mean and standard deviation for the items measuring the perceptions of *self-ability* for the e-filer and manual filer groups, respectively, are shown in Table 6.4.

Table 6.4: Mean, Median and Dispersion of Self-Ability

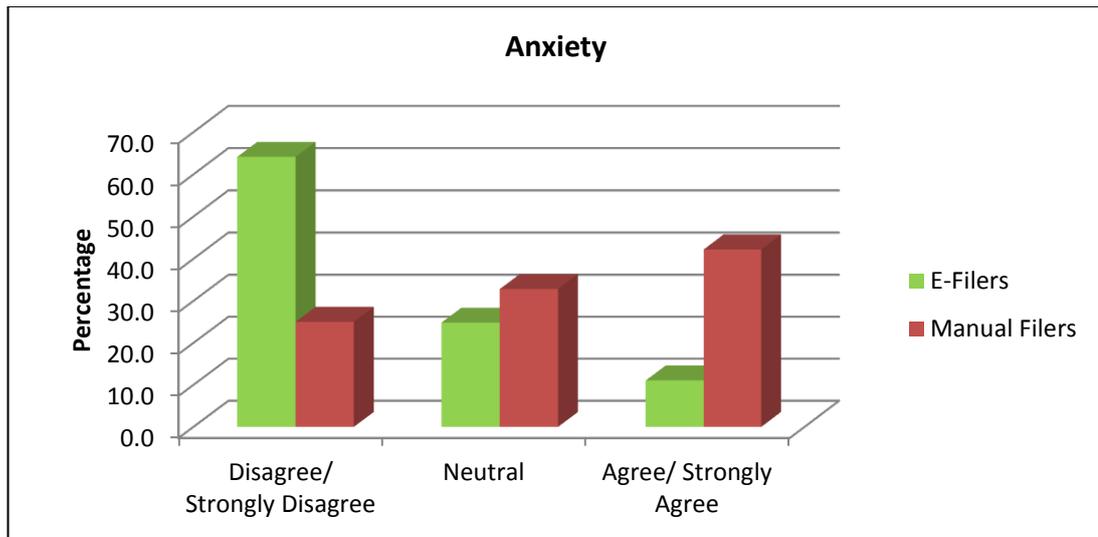
Items	N	Min	Max	Median	Mean	SD
E-Filers Group:						
SA1-Nohelp	145	1	5	4.00	3.57	1.104
SA2-Knowledge	145	1	5	4.00	3.92	0.821
SA3-Resource	145	1	5	4.00	3.93	0.918
Manual Filers Group:						
SA1-Nohelp	64	1	5	3.00	2.75	0.925
SA2-Knowledge	64	1	5	3.00	3.16	0.813
SA3-Resource	64	1	5	3.00	3.30	1.109

6.2.4 Anxiety

6.2.4.1 Frequency

The feeling of *anxiety* was measured by statements relating to nervousness, being scared, hesitation and intimidation towards using the e-filing system. A higher mean score indicates a higher level of *anxiety* towards e-filing and vice versa. The majority of users of the e-filing system in this study (64 percent) fell in the disagree/strongly disagree category, which suggests that they did not have any *anxiety* towards using the e-filing system. In contrast, the majority of respondents who used manual filing (42 percent) were in the agree/strongly agree category. This suggests that they had *anxiety* towards using e-filing. Figure 6.3 depicts the frequency distribution of the *anxiety* among the e-filers and manual filers.

Figure 6.3: Frequency Distribution for Anxiety



6.2.4.2 Mean, Median and Standard Deviation

The mean scores for each item for *anxiety* were between 1.97 and 2.41 for the e-filer group and between 3.00 and 3.39 for the manual filer group. The results suggest that the respondents who used e-filing did not have a feeling of *anxiety* towards using the system but their counterparts felt that e-filing was somewhat intimidating and were hesitant, nervous and scared to use the system. The difference between the two groups is much more noticeable when looking at the median scores, where e-filers had a median of 2.00 for all items whereas manual filers had a median of 3.00 or 4.00. Further details on the central tendency and dispersion for the *anxiety* predictor are shown Table 6.5.

Table 6.5: Mean, Median and Dispersion of Anxiety

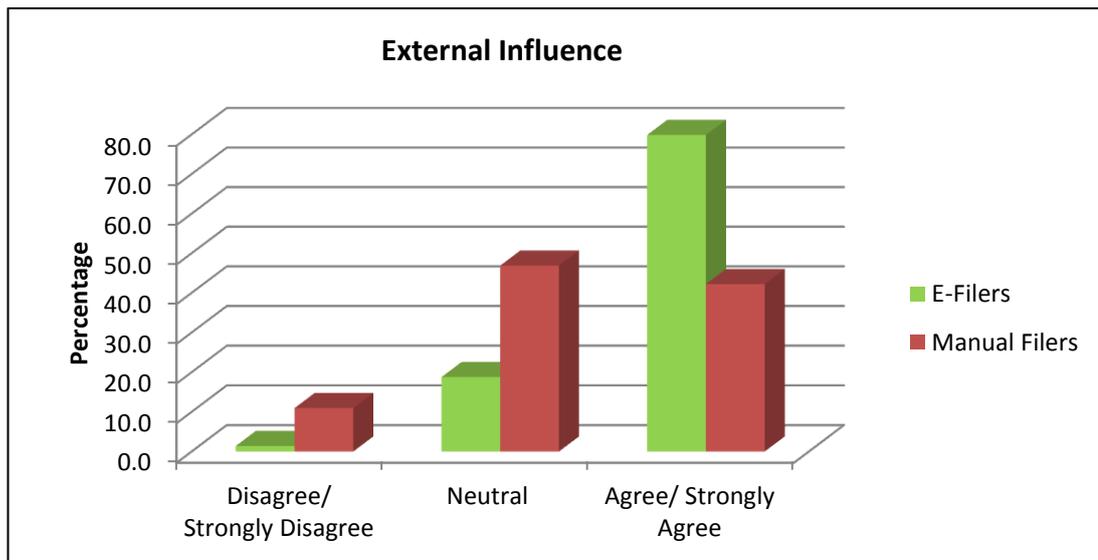
Items	N	Min	Max	Median	Mean	SD
E-Filers Group:						
AF1-Hesitate	145	1	5	2.00	2.41	1.102
AF2-Nervscare	145	1	5	2.00	2.26	0.941
AF3-Intimidate	145	1	5	2.00	1.97	0.931
Manual Filers Group:						
AF1-Hesitate	64	1	5	4.00	3.39	1.149
AF2-Nervscare	64	1	5	3.00	3.23	1.050
AF3-Intimidate	64	1	5	3.00	3.00	1.113

6.2.5 External Influence

6.2.5.1 Frequency

External influence was measured by family reference, colleagues' reference and the system itself. Most of the e-filer group (almost 80 percent) fell within the agree/strongly agree category towards *external influence*. Only about 1 percent of e-filers in this study did not agree that the external factors influenced them to use e-filing. In contrast, the majority of manual filers (47 percent) indicated that they were neutral towards *external influence*, while another 42 percent fell in the agree/strongly agree category. This signals that their *external influence* was negative towards the use of the e-filing system. The distribution of *external influence* across the level of agreement by filing groups is illustrated in Figure 6.4.

Figure 6.4: Frequency Distribution for External Influence



6.2.5.2 Mean, Median and Standard Deviation

The mean scores for *external influence* for the e-filer group were between 3.77 and 3.95 with the median scores for all items being 4.00. This reflects that many e-filer group members agreed that family, colleagues and the e-filing system itself influenced their e-filing usage behaviour. The influence of the system itself was perceived as the highest *external influence*. Slightly lower than the e-filer group, the mean scores for the manual filer group were between 3.16 and 3.28, with medians of

3.00 for all items. These results conform to the frequency chart in Figure 6.4, which shows that the majority of manual filers were neutral on *external influence*. This suggests that their family, colleagues and the IRBM itself were not convincing enough to change their decision to use manual filing. Details on the mean, median and dispersion of *external influence* for both groups of filers are shown in Table 6.6.

Table 6.6: Mean, Median and Dispersion of External Influence

Items	N	Min	Max	Median	Mean	SD
E-Filers Group:						
Family	145	1	5	4.00	3.77	0.950
Colleague	145	1	5	4.00	3.68	0.964
System	145	1	5	4.00	3.95	0.793
Manual Filers Group:						
Family	64	1	5	3.00	3.16	0.930
Colleague	64	2	5	3.00	3.28	0.806
System	64	1	5	3.00	3.19	0.852

6.3 Comparison for Predictors by Demographic Variables

6.3.1 Introduction

After satisfying the assumptions of normality and equality of variance,⁵⁶ it was decided to use the parametric tests to compare whether there was a significant difference for the mean scores of predictors across the demographic variables of the groups. The results from the analyses are likely to provide further insight into which demographic variables need to be treated differently in the formulation of strategies to increase the take-up rates of e-filing. The test results indicate that *PU*, *self-ability*, *anxiety* and *external influence* were not significantly different for gender, age, marital status and location. Details of the results for the groups with significant differences are presented below.

⁵⁶ To test for normality, a histogram with normal curve, and skewness and kurtosis values were used. It was found that the skewness and kurtosis values for perceived usefulness, self-ability, anxiety and external influence between gender, filing methods and use of tax agents fell within the acceptable range of ± 1 (Hair et al., 2007, p. 321) and the examination of the histogram with the normality curve also indicated a normal distribution (Hair et al., 2006; Field, 2009).

6.3.2 Gender

An independent *t*-test was conducted to compare the mean scores between males and females for the predictors of e-filing usage behaviour, namely, *PU*, *self-ability*, *anxiety* and *external influence*. The results indicate that there was no significant difference between male and female perceptions towards all predictors. The magnitudes of the differences in the means were very small (all were less than 0.06). The details of the *t*-test results for gender are shown in Table 6.7.

Table 6.7: *t*-Test for Gender

Predictors	Gender	<i>N</i>	Mean	<i>SD</i>	<i>p</i> -value	Mean Difference
<i>Perceived Usefulness</i>	Male	125	3.99	0.79	0.86	-0.02
	Female	84	4.01	0.80		
<i>Self-Ability</i>	Male	125	3.58	0.99	1.00	0.00
	Female	84	3.58	0.85		
<i>Anxiety</i>	Male	125	2.59	1.10	0.83	0.03
	Female	84	2.56	1.04		
<i>External Influence</i>	Male	125	3.59	0.81	0.66	-0.05
	Female	84	3.64	0.82		

6.3.3 Filing Methods

An independent samples *t*-test was conducted to compare perceptions on predictors of e-filing behaviour (*PU*, *self-ability*, *anxiety* and *external influence*) between electronic and manual filing conditions. There were significant differences in the scores for e-filing and manual filing for all of the predictors. These results suggest that the filing method had an effect on *PU* towards e-filing, *self-ability*, *anxiety* and *external influence*. More specifically, these results suggest that when taxpayers used e-filing to file their income tax returns, their perception of the system's usefulness was better. These results also suggest that when taxpayers used e-filing to file their income tax returns, they felt that they had higher levels of ability, less anxiety and higher external influence to use the e-filing system compared to those who did not use the system. The *t*-test results for all the predictors of e-filing and manual filing are shown in Table 6.8.

Table 6.8: *t*-Test between E-Filing and Manual Filing

Predictors	Filing Method	<i>N</i>	Mean	<i>SD</i>	<i>p</i> -value	Mean Difference
<i>Perceived Usefulness</i>	E-filing	145	4.25	0.66	0.00*	0.83
	Manual	64	3.42	0.75		
<i>Self-Ability</i>	E-filing	145	3.82	0.85	0.00*	0.77
	Manual	64	3.05	0.90		
<i>Anxiety</i>	E-filing	145	2.27	0.93	0.00*	-1.01
	Manual	64	3.28	1.06		
<i>External Influence</i>	E-filing	145	3.79	0.77	0.00*	0.57
	Manual	64	3.22	0.79		

Note: *The mean difference is significant at the 0.05 level.

6.3.4 Employment Status

An independent-samples *t*-test was conducted to compare perceptions on predictors of e-filing behaviour (*PU*, *self-ability*, *anxiety*, and *external influence*) in employed and self-employed conditions. There were significant differences in the scores for employed and self-employed conditions for *PU*, *self-ability*, *anxiety*, and *external influence*. These results suggest that the employment status had an effect on respondents' *PU*, *self-ability*, *anxiety*, and *external influence* towards e-filing. In particular, these results suggest that taxpayers in the employed or salaried group felt that they had higher levels of *PU* and *self-ability*, less *anxiety* and higher *external influence* to use the e-filing system compared to those who were self-employed. Details on the *t*-test results for the employed and self-employed groups are shown in Table 6.9.

Table 6.9: *t*-Test for Predictors between Employed and Self-Employed

Predictors	Emp. Status	<i>N</i>	Mean	<i>SD</i>	<i>p</i> -value	Mean Difference
<i>Perceived Usefulness</i>	Employed	169	4.05	0.77	0.04*	0.28
	Self-Employed	40	3.77	0.83		
<i>Self-Ability</i>	Employed	169	3.66	0.91	0.01*	0.41
	Self-Employed	40	3.25	0.98		
<i>Anxiety</i>	Employed	169	2.47	1.06	0.00*	-0.58
	Self-Employed	40	3.05	1.04		
<i>External Influence</i>	Employed	169	3.67	0.80	0.03*	0.32
	Self-Employed	40	3.35	0.83		

Note: *The mean difference is significant at the 0.05 level.

6.3.5 Use of Tax Agents

The results from the independent samples *t*-test indicate that there were significant differences in the scores for respondents who used a tax agent and for those who did not employ a tax agent for *self-ability* and *anxiety*. These results suggest that the usage of a tax agent had an effect on respondents' *self-ability* and feeling of *anxiety* towards e-filing. More specifically, these results suggest that taxpayers who did not engage a tax agent to file their income tax returns felt that they had higher *self-ability* and less feeling of *anxiety* than those who engaged a tax agent.

However, there were no significant differences in the scores for respondents who employed a tax agent and those who did not employ a tax agent in terms of *PU* and *external influence*. The magnitude of difference in the means for *PU* and *external influence* (mean difference = 0.26 and 0.28, respectively) were very small (eta squared = 0.014 and 0.015, respectively). Details of the results from the *t*-test for the usage of a tax agent are presented in Table 6.10 .

Table 6.10: *t*-Test between for Predictors between Used and Did Not Used a Tax Agent

Predictors	Use of Tax Agent	<i>N</i>	Mean	<i>SD</i>	<i>p</i> -value	Mean Difference
<i>Perceived Usefulness</i>	Yes	32	3.78	0.79	0.09	0.26
	No	177	4.04	0.79		
<i>Self-Ability</i>	Yes	32	3.09	1.09	0.00*	0.58
	No	177	3.67	0.88		
<i>Anxiety</i>	Yes	32	3.19	1.23	0.00*	-0.72
	No	177	2.47	1.01		
<i>External Influence</i>	Yes	32	3.38	0.83	0.09	0.28
	No	177	3.66	0.80		

Note: *The mean difference is significant at the 0.05 level.

6.3.6 Age

A one-way between groups' ANOVA was performed to explore the impact of age on levels of agreement regarding *PU*, *self-ability*, *anxiety* and *external influence*. Prior to the test, the original five age groups were combined into three groups (below 45, 45 to 54, and 55 and above). This was done because there was a small case number for the age groups of below 24 and more than 64. However, there were no significant differences in the scores for all age groups ($p > 0.05$ for all items). The results

suggest that although many younger respondents (75 percent of total respondents aged less than 45) used e-filing, their perception on *PU*, *self-ability*, *anxiety* and *external influence* were not significantly different from the older respondents. Age, therefore, was not an important factor affecting the determinants of the e-filing usage behaviour.

6.3.7 Ethnicity

A one-way between groups' ANOVA was conducted to compare the effect of ethnicity on the four predictors of e-filing usage behaviour (that is *PU*, *self-ability*, *anxiety* and *external influence*). There were significant effects of ethnicity at the $p < 0.05$ level on all of the predictors [($F(3, 205) = 5.16, p = 0.00$ – *PU*), ($F(3, 205) = 5.98, p = 0.00$ – *self-ability*), ($F(3, 205) = 7.01, p = 0.00$ – *anxiety*), ($F(3, 205) = 5.21, p = 0.00$ – *external influence*)].

Post-hoc comparisons using the Tukey HSD test indicated that the mean scores for the Malay group [($M = 4.15, SD = 0.77$), ($M = 3.83, SD = 0.08$), ($M = 2.26, SD = 0.91$), ($M = 3.80, SD = 0.86$)] were significantly different to the Chinese group [($M = 3.73, SD = 0.76$), ($M = 3.29, SD = 0.10$), ($M = 2.94, SD = 1.07$), ($M = 3.34, SD = 0.62$)] for *PU*, *self-ability*, *anxiety* and *external influence*, respectively. However, the Indian and “others” groups did not significantly differ from the Malay and Chinese groups for all the predictors.

Taken together, these results suggest that ethnicity did have an effect on perception towards the predictors of e-filing usage behaviour. More specifically, these results suggest that the Malay group had a better perception of *PU*, *self-ability* and *external influence*, and less *anxiety* than the Chinese group. However, it should be noted that other ethnicities had no significant effect on predictors of e-filing usage behaviour. The detailed results of the ANOVA and post-hoc Tukey HSD tests for ethnic groups are presented in Table 6.11.

Table 6.11: One-Way ANOVA and Post-Hoc Tests (Tukey HSD) for Ethnicity Groups

Predictors	<i>N</i>	<i>df1</i>	<i>df2</i>	Mean	<i>SD</i>	<i>F</i>	<i>p</i> -value
<i>Perceived Usefulness:</i>							
Malay	107	3	205	4.15*	0.77	5.16	0.00
Chinese	79			3.73*	0.76		
Indian	11			4.27	0.79		
Others	12			4.17	0.72		
<i>Self-Ability:</i>							
Malay	107	3	205	3.83*	0.08	5.98	0.00
Chinese	79			3.29*	0.10		
Indian	11			3.64	0.28		
Others	12			3.25	0.37		
<i>Anxiety:</i>							
Malay	107	3	205	2.26*	0.91	7.01	0.00
Chinese	79			2.94*	1.07		
Indian	11			2.91	1.45		
Others	12			2.75	1.36		
<i>External Influence:</i>							
Malay	107	3	205	3.80*	0.86	5.21	0.00
Chinese	79			3.34*	0.62		
Indian	11			3.64	0.92		
Others	12			3.67	0.98		

Note: *The mean difference is significant at the 0.05 level.

6.3.8 Level of Education

A one-way between groups' ANOVA was conducted to compare the effect of education levels on the four predictors of e-filing usage behaviour. As explained previously, there were four levels of education groups: up to STPM, diploma, graduate, and postgraduate. The findings indicate that education level only had a significant effect at the $p < 0.05$ level on *self-ability* ($F(3, 205) = 5.01, p = 0.00$). Education level, however, did not affect the *PU*, *anxiety* and *external influence*. Post-hoc comparisons using the Tukey HSD test indicate that the mean scores for the up to STPM group ($M = 3.30, SD = 0.96$) were significantly different to the graduate ($M = 3.82, SD = 0.86$) and postgraduate ($M = 3.85, SD = 0.82$) groups. The diploma group was not significantly different from any other group for self-ability.

Overall, these results imply that education level did have an effect, but only on the *self-ability* predictor. More specifically, the results suggest that the lower educational attainment group had a lower perception of *self-ability* to e-file than the higher educational attainment groups. However, the respondents must at least have been in the graduate group to have a different opinion on *self-ability*; the diploma group showed no significant difference with the other groups. The detailed results of the

ANOVA and the post-hoc Tukey HSD test for different education levels groups are presented in Table 6.12.

Table 6.12: One-Way ANOVA for Educational Levels

Predictors	N	df1	df2	Mean	SD	F	p-value
Perceived Usefulness:							
Up to STPM	83	3	205	3.84	0.82	1.84	0.14
Diploma	31			4.13	0.76		
Graduate	68			4.09	0.79		
Postgraduate	27			4.11	0.70		
Self-Ability:							
Up to STPM	83	3	205	3.30*	0.96	5.01	0.00
Diploma	31			3.58	0.96		
Graduate	68			3.82*	0.86		
Postgraduate	27			3.85*	0.82		
Anxiety:							
Up to STPM	83	3	205	2.83	1.15	2.64	0.05
Diploma	31			2.42	1.12		
Graduate	68			2.38	0.95		
Postgraduate	27			2.48	1.01		
External Influence:							
Up to STPM	83	3	205	3.55	0.86	0.73	0.53
Diploma	31			3.71	0.82		
Graduate	68			3.69	0.74		
Postgraduate	27			3.48	0.85		

Note: *The mean difference is significant at the 0.05 level.

6.3.9 Annual Income

A one-way between groups' ANOVA was conducted to compare the effect of annual income on the four predictors of e-filing usage behaviour. There were four annual income groups: less than RM36,000, RM36,000 to RM69,999, RM70,000 to RM149,999, and RM150,000 or more. The findings indicate that annual income group had a significant effect on *self-ability* ($F(3, 205) = 5.01, p < 0.05$) at the $p < 0.05$ level only. Post-hoc comparisons using the Tukey HSD test indicate that the mean scores for the less than RM36,000 group ($M = 3.33, SD = 0.88$) had a marginally significant difference to the RM70,000 to RM149,999 group ($M = 3.79, SD = 0.81$). The RM36,000 to RM69,999 and RM150,000 or more groups had no significant difference in *self-ability*. However, it should be noted that the annual income groups had no effect on three other predictors, namely, on *PU*, *anxiety* and *external influence*.

These results imply that annual income groups only had an effect on *self-ability* but not on other e-filing usage behaviour predictors. More specifically, the results

suggest that the lower income group had lower perceptions towards *self-ability* than the higher income group. However, there was no significant difference for the highest income group and the second income group. Details of the results of ANOVA and post-hoc Tukey HSD tests for the different annual income groups are presented in Table 6.13.

Table 6.13: One-Way ANOVA for Annual Income Groups

Predictors	N	df1	df2	Mean	SD	F	p-value
Perceived Usefulness:							
Less than RM36,000	63	3	205	3.87	0.75	0.86	0.46
RM36,000 - RM69,999	92			4.04	0.85		
RM70,000 - RM149,999	42			4.05	0.76		
RM150,000 or more	12			4.17	0.58		
Self-Ability:							
Less than RM36,000	63	3	205	3.33*	0.88	2.77	0.04
RM36,000 - RM69,999	92			3.62	1.00		
RM70,000 - RM149,999	42			3.79*	0.81		
RM150,000 or more	12			3.92	0.90		
Anxiety:							
Less than RM36,000	63	3	205	2.71	1.08	1.04	0.37
RM36,000 - RM69,999	92			2.61	1.11		
RM70,000 - RM149,999	42			2.38	1.01		
RM150,000 or more	12			2.33	0.98		
External Influence:							
Less than RM36,000	63	3	205	3.63	0.85	0.03	0.99
RM36,000 - RM69,999	92			3.60	0.84		
RM70,000 - RM149,999	42			3.62	0.73		
RM150,000 or more	12			3.58	0.79		

Note: *The mean difference is significant at the 0.1 level.

6.4 Determinants of E-Filing Usage Behaviour

6.4.1 Introduction

This study utilised a binary logistic regression (hereafter referred to as logistic regression) to assess the impact of a number of factors on the likelihood that respondents will use the e-filing system to file their income tax returns. The logistic regression analysis was preferable because it can accommodate the binary or dichotomous outcome variable (Hosmer & Lemeshow, 2000, p. 1). In this study, the full model consists of one dichotomous outcome (whether the respondent used or did not use the e-filing system) and four predictors, which were *PU*, *self-ability*, *anxiety* and *external influence*. The outcome is in binary form, and is coded as “0” for respondents who did not use the e-filing system to lodge their income tax returns and “1” for those who used the system. The predictors on the other hand were treated as

continuous variables. First, using logistic regression, the model was tested for goodness-of-fit. Subsequently, the assessment on how well the model is able to predict the correct category for each respondent was undertaken. Finally, significant predictors were identified from the logistic regression outputs.

6.4.2 Overall Model’s Goodness-of-Fit

The logistic regression analysis for this study used the “enter” method to produce results. The omnibus tests of model coefficients and model summary tables from the analysis show the data to assess the goodness-of-fit of the model. The full model containing all predictors was statistically significant (χ^2 (4, N = 209) = 63.031, $p=0.000$), suggesting that the model fits the data well. In other words, the model is said to be able to distinguish between respondents who used and did not use the e-filing system to file their income tax returns. The model as a whole explained between 26.0 percent (Cox and Snell R square) and 36.8 percent (Nagelkerke R square) of the variance in e-filing usage behaviour. Details of the overall model’s goodness-of-fit from the omnibus tests of model coefficients and model summary tables are shown in Table 6.14.

Table 6.14: Overall Model’s Goodness-of-Fit Tests (N=209)

Test	R ²	χ^2	df	p
Omnibus Tests of Model Coefficients		63.031	4	.000
Hosmer and Lemeshow Test		5.524	8	.700
Cox & Snell R Square	.260			
Nagelkerke R Square	.368			

6.4.3 Evaluations of the Logistic Regression Model

According to the results presented in Table 6.15, the prediction for respondents who used the e-filing system to file their income tax returns was more accurate than that for those who did not use the system. This observation was also supported by the magnitude of sensitivity (93.10 percent) compared to that of specificity (48.44 percent) and the false positive rate (19.4 percent) being lower than the false negative rate (34.39 percent). Sensitivity measures the proportion of correctly classified events (i.e., respondents who used the e-filing system), while specificity measures the proportion of correctly classified non-events (i.e., respondents who did not use the e-filing system) (Peng, Lee, & Ingersoll, 2002, p. 8). The false positive rate

measures the proportion of observations misclassified as events, whereas the false negative measures the proportion of observations misclassified as non-events. Using the model, 79.4 percent of respondents were classified correctly.

Table 6.15: The Observed and Predicted Frequencies for E-Filing Usage Behaviour by Logistic Regression

Observed	Predicted		Percentage Correct
	Did not use e-filing	Used e-filing	
Did not use e-filing	31	33	48.4
Used e-filing	10	135	93.1
Overall percentage correct			79.4

Note: The cut-off value is 0.500. Sensitivity = $135/(10+135)\%=93.10\%$. Specificity $31/(31+33)\%=0\%$. False positive = $33/(33+135)\%=19.64\%$. False negative = $10/(31+10)\%=34.39\%$.

6.4.4 Predictors Significantly Affecting the E-Filing Usage Behaviour

As shown in Table 6.16, only two of the predictors made a unique statistically significant contribution to the model (*PU* and *anxiety*). The Wald test⁵⁷ indicates that the highest value is for *PU* (10.422) followed by *anxiety* (6.565). The β values indicate that *PU* has a positive relationship with the e-filing usage behaviour, whereas *anxiety* has a negative relationship. Specifically, the higher the respondents' *PU* regarding the e-filing system, the more likely they will use the system, while the higher the respondents' *anxiety*, the less likely they will use the system.

The strongest predictor of e-filing usage behaviour was *PU*, recording an odds ratio of 3.15. This indicates that when controlling for all other factors in the model, those respondents who perceived the e-filing as useful for lodging their income tax returns were over three times more likely to use the e-filing system than those who did not perceive the system to be useful. The odds ratio of 0.56 for *anxiety* was less than one, indicating that for every additional feeling of anxiety, respondents were 0.56 times less likely to have used the e-filing system, controlling for other factors in the model. It was found that the e-filing usage behaviour was positively related to *PU* and negatively related to *anxiety*. Detailed results on the logistic regression are shown in Table 6.16.

⁵⁷ Wald statistic is a test statistic with a known probability distribution (a chi-square distribution) that is used to test whether the *b* coefficient for a predictor in a logistic regression model is significantly different from zero (Field, 2009, p. 796). A coefficient of "0" indicate the coefficient has no impact on the dependent variable or the outcome (Hair et al., 2006, p. 363).

Table 6.16: Logistic Regression Predicting Likelihood of E-Filing Usage Behaviour

Predictor	β	β S.E.	Wald	df	p	Odds Ratio (Exp(B))	95.0% C.I. for Odds Ratio	
							Lower	Upper
<i>Perceived Usefulness</i>	1.146	0.355	10.422	1	0.001*	3.145	1.569	6.305
<i>Self-Ability</i>	0.253	0.252	1.012	1	0.314	1.288	0.787	2.109
<i>Anxiety</i>	-0.549	0.214	6.565	1	0.010*	0.557	0.379	0.879
<i>External Influence</i>	-0.088	0.309	0.080	1	0.777	0.916	0.500	1.678
Constant	-2.720	1.631	2.782	1	0.095	0.066		

Note: *Significance level is at $p < 0.05$.

As a new development in the income tax system, the pre-filled return system was also examined to gauge the awareness of the system among personal income taxpayers in Malaysia. The following section presents the results on pre-filing awareness.

6.5 Perceptions on Pre-Filled Return System

The use of pre-populated returns has become a feature in the personal income tax system especially in Nordic countries such as Denmark, Estonia, Finland, Norway and Sweden (Organisation for Economic Co-operation and Economic Development, 2006).⁵⁸ The system is also well accepted in Australia as part of the e-filing system. The system could be very useful if integrated in the tax e-filing system in Malaysia.⁵⁹ It would be useful to survey public opinion in general before such a system is introduced to identify any areas that need attention. As PIT payers are the ultimate users of the system, this study explores the respondents' perception towards the pre-filing system. The findings may provide some insights for policy-makers on the understanding and acceptance of the new system among PIT payers.

Data for this section was taken from Section D of the questionnaire (Part (ii) on pre-filing). Respondents were asked to indicate their opinions using a five-point Likert scale (1=strongly disagree, 2=agree, 3=neutral, 4=agree and 5=strongly agree) on each statement. At the beginning of Section D in the questionnaire, the definitions of pre-filing and e-filing systems were given to help respondents understand the terms and the related statements. Similar to the previous section, to reduce the problem of

⁵⁸ Refer to Section 2.5.4, Chapter 2 for further explanation of the pre-filled return system.

⁵⁹ The IRBM piloted a pre-filing system among IRBM and Petronas Bhd staff with regard to employment-related information in 2010 (Source: personal communication with IRBM officials on 24 May 2010).

lower responses on extreme opinion (strongly disagree and strongly agree), respondents who rated the statements as “1” and “2” were combined as the disagreed/strongly disagreed group. This treatment was also applied to those who answered “4” and “5”, who were combined to become the agreed/strongly agreed group. Those who answered “3” remained in the neutral group.

The descriptive results reveal that the majority of respondents fell within the neutral group for four out of eight statements. Their opinions suggest that the majority of respondents were not familiar with the concept of pre-filing, and therefore could not provide an opinion (whether agree or disagree) on the statements. For example, about 36 percent of the respondents liked the overall idea of the pre-filing system, and 24 percent did not like the idea of pre-filing. The majority (about 40 percent) stated that they were neutral towards the system, from which it can be deduced that they could not provide an opinion. The details of the findings are presented in Table 6.17.

Table 6.17: Descriptive Results for Perceptions on Pre-Filing (N=209)

No.	Statements	Disagree/ Strongly Disagree (%)	Neutral (%)	Agree/ Strongly Agree (%)	Mean	Std. Dev.
1.	The IRBM should have access to incomes and expenses information from a third party.	42.6	25.4	32.0	2.72	1.186
2.	The IRBM should pre-fill my income tax return.	26.8	37.8	35.4	3.03	1.042
3.	Pre-filing would involve tax data security problems.	8.7	35.4	45.9	3.33	1.001
4.	Pre-filing will make taxation a lower priority to taxpayer.	33.9	37.8	28.3	2.97	1.021
5.	Pre-filing will help solve the problem of tax complexity.	20.6	34.0	45.5	3.26	1.000
6.	Pre-filing will reduce the burden and costs of filing an income tax return.	21.5	32.1	46.4	3.22	1.025
7.	I understand well the tax pre-filing.	23.9	45.0	31.1	3.04	0.970
8.	Overall, I like the idea of pre-filing of income tax return.	24.4	39.7	35.9	3.11	1.082

According to the results presented in Table 6.17, the area of most concern among respondents regarding the pre-filing system was the security of their tax data (statements 1 and 3). The majority of respondents (43 percent) disagreed that the tax authority should have access to their information from a third party (statement 1). Many of them (46 percent) also agreed that the pre-filing system would involve tax data security problems. Despite the respondents’ concern about security, the majority

of them were of the opinion that pre-filing would help solve the tax complexity problem (statement 5) and reduce the compliance costs of filing income tax returns (statement 6). This sheds some light on their approval of the pre-filing system.

Analysis of important demographic characteristics of the respondents using the *t*-test and one-way ANOVA indicates a few significant results. In terms of filing methods, the perceptions of data security under the pre-filing system (statement 3) were significantly different between the e-filer and manual filer groups. Those who used the e-filing method were more likely to perceive that pre-filing would involve more tax data security (mean = 3.42) than the manual filer group (mean = 3.13). This is quite interesting because the e-filers had already accepted the e-filing system. The high level of concern about security data among the e-filers was probably due to the fact that they were more technology “savvy” than the manual filers. The different perceptions regarding the data security lead to the finding that the manual filers’ perceptions (mean = 3.31) towards the overall idea of pre-filing were more positive than the e-filers (mean = 3.01).

Different perceptions regarding the pre-filing system are also found between those who used a tax professional and those who did not use a tax professional, especially regarding whether the pre-filing system could solve the complexity problem (statement 5) and reduce the compliance costs (statement 6). The respondents who did not engage a tax professional agreed that pre-filing would help solve the complexity problem (mean = 3.33) and reduce the compliance costs (mean = 3.29). However, those who engaged a tax professional perceived that pre-filing would not solve the complexity problem (mean 2.87) and reduce their compliance costs (mean = 2.87). The findings suggest that those who used a tax professional did not believe that a pre-filing system would be good for them anyway.

Classification of perceptions according to ethnicity indicates more significant findings. The Chinese respondents, especially, had different views towards pre-filing than Malays and other ethnic groups. The Chinese respondents did not agree that the IRBM should access their tax information from third parties (statement 1) (mean = 2.38), compared to the Malays (mean = 3.03). The Chinese respondents (mean = 3.04) also had more negative perceptions towards the ability of pre-filing to solve tax complexity (statement 5) compared to Malays (mean = 3.39) and others

(mean = 3.67). Moreover, the Chinese respondents did not believe that pre-filing will reduce compliance costs (statement 6) and therefore they did not like the idea of the pre-filing system (statement 8) (mean = 2.76). The Chinese (mean = 2.84) regarded themselves as having low understanding of the pre-filing system (statement 7) compared to other ethnic groups. The findings on ethnicity suggest that the Chinese group was the most resistant group towards pre-filing system until they understand the system properly. This finding is similar to the characteristics of the manual filers in the previous section.⁶⁰

Analysis of perceptions towards the pre-filing system according to education attainment indicates that those who had low education attainment (mean = 3.02) had a low perception that pre-filing would involve tax data security compared with graduates (mean = 3.76). Therefore, they (mean = 3.37) liked the pre-filing system more than the graduates (mean = 2.88). This suggests that pre-filing was well accepted by those with low education attainment. This is probably because they did not have good levels of knowledge and skills to do their own tax.

In terms of annual income groups, it was found that more of those with low annual income (mean = 3.46) perceived that the pre-filing could help solve the complexity problem than those in the highest annual income group (mean = 2.67). The findings suggest that the pre-filing system was welcomed by those with low income and low education attainment who did not engage any tax professional and who used the manual filing system. Other comparisons which resulted in no significant difference are not discussed in this section. Details on the means for perceptions towards pre-filing by selected demographic variables are presented in Table 6.18.

⁶⁰ Refer to Section 5.3.3, Chapter 5.

Table 6.18: Means for Perception on Pre-Filing by Selected Demographic Variables

Item	N	Statement ^a							
		1	2	3	4	5	6	7	8
Filing Method:									
E-filing	145	2.73	2.97	3.42*	3.01	3.22	3.23	3.06	3.01*
Manual filing	64	2.69	3.16	3.13*	2.86	3.34	3.20	2.98	3.31*
Employment:									
Employed	164	2.77	3.09	3.31	2.96	3.30	3.27	3.11	3.16
Self-employed	40	2.48	2.78	3.38	2.93	3.00	3.00	2.80	2.85
Use of Tax Professional:									
Yes	31	2.61	2.81	3.26	2.84	2.87*	2.87*	2.77	2.90
No	178	2.74	3.07	3.34	2.99	3.33*	3.29*	3.08	3.14
Ethnicity:									
Malay	107	3.03*	3.08	3.28	2.93	3.39*	3.39*	3.21	3.28*
Chinese	79	2.38*	2.85	3.48	3.09	3.04*	3.00*	2.84	2.76*
India	11	2.45	3.36	3.00	2.82	3.09	3.00	2.91	3.18
Others	12	2.42	3.42	3.08	2.67	3.67*	3.42	3.00	3.75*
Education:									
Up to STPM	83	2.99	3.20	3.02*	2.92	3.42	3.30	3.11	3.37*
Diploma	31	2.68	2.81	3.29	3.10	3.29	3.23	2.81	3.06
Graduate	68	2.51	2.99	3.76*	3.04	3.01	3.16	3.06	2.88*
Postgraduate	27	2.44	2.85	3.22	2.78	3.33	3.15	3.04	2.89
Annual Income:									
Less than RM36,000	63	2.70	3.10	3.30	3.02	3.46*	3.25	3.13	3.17
RM36,000 to RM69,999	92	2.86	3.10	3.27	3.00	3.28	3.28	3.05	3.13
RM70,000 to RM149,999	42	2.40	2.88	3.45	2.81	3.07	3.17	2.95	2.98
RM150,000 and above	12	2.83	2.67	3.50	3.00	2.67*	2.83	2.75	3.00

Note: ^aPlease see Table 6.17 in Section 6.5 for full statements.

*The mean difference is significant at the 0.05 level.

**The mean difference is significant at the 0.10 level.

6.6 Chapter Summary

This chapter has analysed the significant determinants of the e-filing usage behaviour using logistic regression. Prior to the analysis, factor analysis was performed to group 22 items in the questionnaire into smaller groups that had similar underlying factors. The factor analysis confirmed that only four factors (that is, *PU*, *self-ability*, *anxiety* and *external influence*) were available for further tests. Using a logistic regression, the results indicated that *PU* and *anxiety* were the two significant determinants of e-filing usage behaviour. In particular, respondents who used e-filing had a better perception of the *PU* of e-filing and less *anxiety* compared to their counterparts. However, *self-ability* and *external influence* were not significant determinants although they fit the model well.

The t-test and ANOVA indicated that the perceptions regarding all predictors of e-filing usage behaviour were significantly different among respondents for the different filing methods, employment status and ethnicity. Those respondents who

used a tax agent to file their returns also showed significant differences for *PU*, *self-ability* and *anxiety*, compared to those who did not use a tax agent. Meanwhile, the level of education and level of annual income only affected the perception of *self-ability*. In addition, age and gender had no influence on the perception concerning e-filing determinants. The descriptive analysis also revealed that the e-filer group had a different perception to the manual filer group.

Overall, the findings indicated that the manual filers had quite a sceptical perception of e-filing determinants compared to the e-filer group, which, in turn, justified why they did not use e-filing to file their tax returns. However, pre-filing was perceived as a method that reduces the tax compliance burden by the majority of respondents. The next chapter reports the results related to tax compliance costs and e-filing.

Chapter 7

Tax Compliance Costs and E-Filing

7.1 Introduction

Compliance costs of taxation consist of time spent and monetary expenditure. They measure the burden upon taxpayers. It is uncertain how many compliance costs are incurred by PIT payers in meeting their income tax requirements. It is also uncertain how far the tax e-filing system can help reduce the compliance costs. Therefore, this study empirically investigated the level of compliance costs for PIT in Malaysia and the effect of the e-filing system on PIT compliance costs and the findings are presented in this chapter.

This chapter presents the findings of the analysis mainly from Section C of the questionnaire on compliance cost items. The research objectives relating to this chapter were to estimate the compliance costs for PIT payers and to examine the effect of e-filing on compliance costs and its components by comparing the manual filing and e-filing costs of PIT payers in Malaysia. Since there are currently no reliable estimates on the overall average compliance costs for the PIT system in Malaysia, it is crucial to establish the compliance costs first before a comparison between manual and electronic filing can be made.

This chapter is divided into seven sections. After the introduction section, the second section focuses on the overall compliance cost estimations. Frequency tables and cross-tabulations were used to examine the findings. The third, fourth and fifth sections present the results on the effect of e-filing on compliance time, monetary costs and total compliance costs respectively. The sixth section briefly explains the effect of compliance costs on e-filing compliance behaviour. Finally, the chapter summary is presented. As a simple mathematics formula, the compliance costs model used for this study is as follows:

$$\text{Total Compliance Costs} = \text{Compliance Time Costs} + \text{Compliance Monetary Costs}$$

7.2 Overall Results on Compliance Costs

7.2.1 Compliance Time

7.2.1.1 Introduction

Time costs refer to the time spent by respondents for several filing activities in order to complete their income tax obligations. These time estimates were then converted into dollar values using a specified value of time. The activities included in the total time spent are presented in Table 7.1 for ease of results presentation and future reference.

Table 7.1: Compliance Time Components and Explanation

Components	Explanation
1. <i>learntime</i>	Learning about tax before filling in income tax return.
2. <i>keepertime</i>	Keeping or obtaining records, such as receipts and statements of remuneration from employers.
3. <i>looktime</i>	Looking at tables or notes to find eligible deductions, reliefs and rebates or tax rates.
4. <i>advicetime</i>	Getting advice from someone else to fill in income tax return.
5. <i>completetime</i>	Completing the income tax return, including filling in, revising and making corrections.
6. <i>submittime</i>	Submitting or lodging the final income tax return.
7. <i>paytime</i>	Paying tax liability for the relevant year, if taxable.
8. <i>supplytime</i>	Supplying information to a tax agent, if a tax agent was employed.
9. <i>plantime</i>	Planning financial affairs in order to minimise tax liability.
10. <i>helptime</i>	Free help from someone else to do or assist in the completion of tax returns.

The time spent was valued into monetary unit using mean reported value. However, for total compliance costs analysis, the median, and national wage rate calculated by the author were also used as cross-check figures and to increase the reliability of results.⁶¹ The next section reports the analysis of compliance time distribution.

7.2.1.2 Distribution of Compliance Time

The overall results indicated that almost 70 percent of respondents spent eight hours or less in fulfilling their PIT responsibility. Specifically, about 20 percent spent less than two hours, 26 percent spent between two to four hours, about 14 percent spent between four to six hours and ten percent spent between six to eight hours. Of those 30 percent who spent more than eight hours, about two-thirds of them spent between

⁶¹ Refer to Section 4.5.6, Chapter 4 for details on time valuation adopted by the present study.

eight to 20 hours, five percent spent between 20 to 40 hours and only about five percent spent more than 40 hours, on their PIT matters. The results showed that the majority of Malaysian personal taxpayers could finish their tax obligations in less than one working day. However, the other 30 percent who spent more than 8 hours should not be neglected. The backgrounds of respondents who spent less or more time were investigated using cross-tabulations for the average time spent by respondents' characteristics revealed in the third section of the questionnaire. Details of the distribution of time spent are shown in Table 7.2.

Table 7.2: Overall Distribution of Compliance Time

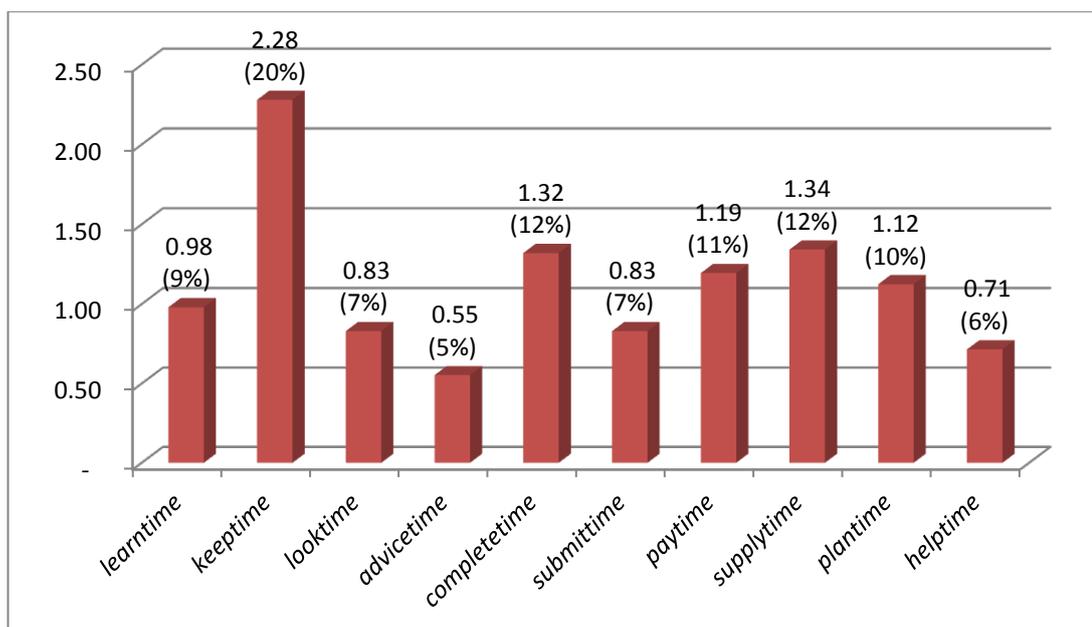
Hours	Number	Percentage
2.00 or less	48	19.8
2.01 to 4.00	63	26.0
4.01 to 6.00	33	13.6
6.01 to 8.00	25	10.3
8.01 to 10.00	24	9.9
10.01 to 20.00	24	9.9
20.01 to 30.00	8	3.3
30.01 to 40.00	4	1.7
More than 40.00	13	5.4

7.2.1.3 Average Compliance Time Spent and Costs by Components

Examination of average total compliance time and its components was performed using a bar chart. Overall, the results indicated that average total compliance time per respondent was 11.17 hours. However, as presented earlier, it should be noted that about 70 percent of respondents actually spent eight hours or less in meeting their PIT tax obligations.

The results indicated that the time components with the highest average compliance time spent were *keepertime* (mean = 2.28 hours). This was followed by *supplytime* (for respondents who hired a tax agent) (mean = 1.34 hours), *completetime* (mean = 1.31 hours), *paytime* (mean = 1.19 hours) and *plantime* (mean = 1.12 hours). Other filing activities had an average compliance time of less than one hour with the lowest time component being *advicetime* (mean = 0.55 hours). The bar chart in Figure 7.1 depicts the average compliance time by compliance time components.

Figure 7.1: Average Compliance Time by Components, 2010



7.2.1.4 Average Compliance Time by Gender

Examination of average compliance time and its components by taxpayers' characteristics was performed using mean and cross-tabulation analysis. The results revealed that, in relation to gender, female respondents (mean = 10.89 hours) spent less time than male respondents (mean = 11.35 hours) in fulfilling their tax obligations, but by only about 28 minutes (or 2.5 percent). *Plantime*, *paytime* and *helptime* were the three components on which most females spent fewer hours than males. For example, the results indicated that females (mean = 0.63 hours) spent about three times less in *plantime* than males (mean = 1.80 hours). However, in terms of *keepertime*, *advicetime* and *completetime*, females spent more hours than males (female mean = 2.92 hours, 0.74 hours and 1.77 hours, respectively; male mean = 1.87 hours, 0.43 hours and 1.03 hours, respectively). The results suggest that males preferred spending time for long-term planning but females preferred spending time checking the current job for accuracy. The details of the results are shown in Table 7.3.

Table 7.3: Average Compliance Time by Gender

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Gender:												
Male	147	0.99	1.87	0.91	0.43	1.03	0.87	1.45	1.80	1.03	0.98	11.35
Female	95	0.97	2.92	0.71	0.74	1.77	0.76	0.80	0.63	1.27	0.30	10.89

7.2.1.5 Average Compliance Time by Marital Status

Analysis of average compliance time by marital status indicated that married respondents were the group that had the highest average compliance time (11.88 hours). They had the highest average time for most of the compliance time components except for *learntime*, *advicetime* and *plantime*, which were dominated by the single respondents group. Compared to single taxpayers, married taxpayers receive a lot more relief that can be claimed from total income (for example, spouse relief, child relief, medical expenditure and insurance premiums related to family members). Therefore, the possibility of married respondents spending more time on their income tax is expected. However, single respondents spent more time on *learntime*, *looktime* and *plantime*, possibly because the majority of them were in a younger age group and new to the income tax environment. Therefore, they needed to study the system well and plan well. Details on the compliance time by marital status are illustrated in Table 7.4.

Table 7.4: Average Compliance Time by Marital Status

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Marital Status:												
Single	36	1.30	1.81	0.74	0.60	1.00	0.41	0.43	0.20	1.36	0.12	7.97
Married	201	0.93	2.39	0.85	0.55	1.39	0.91	1.34	1.58	1.10	0.84	11.88
Other	4	0.88	1.38	0.75	0.25	1.13	0.75	0.75	0.00	0.65	0.00	6.52

7.2.1.6 Average Compliance Time by Age

In terms of age, it was found that the oldest age group (65 and over) spent the highest average compliance time (mean = 15.12 hours). This was followed by the age group of 25 to 44 (mean = 13.93 hours) and 24 and under (mean = 12.31 hours). The age group 55 to 64 was the group with the minimal total average compliance time (mean = 5.84 hours). In particular, the respondents aged 65 and over spent more time on

supplytime (mean = 4.12 hours) and *plantime* (mean = 4.12 hours) which indicates that they were represented mostly by self-employed respondents who had more complex tax affairs.

Further investigation indicated that the average *keeptime* decreases as age increases. *Keeptime* is the highest for the youngest age group (24 and under) (mean = 6.25 hours) and keeps decreasing for the older age groups. The findings suggest that the increase of age possibly increases the skills of keeping and obtaining records.

Respondents aged between 55 and 64 were very unique in the sense that they spent minimal hours compared to the other groups of taxpayers. Specifically, they spent the least average time for *helptime* (mean = 0.10 hours), *supplytime* (mean = 0.12 hours), *advicetime* (mean = 0.26 hours), *paytime* (mean = 0.29 hours), *plantime* (mean = 0.38 hours) and *submittime* (mean = 0.39 hours). This indicates that the majority of them were not receiving business income and therefore their tax affairs were less complex. Most probably the majority of them were retirees from employment and received pension income after their retirement.⁶²

Compleatetime was in a U-shape wherein the age groups of 24 and under and 65 and over had the highest average time (means = 1.75 hours and 1.85 hours, respectively) and the middle aged group (45 to 54) had the lowest average time (mean = 1.01 hours). The reason for this situation is probably because the younger taxpayers were not familiar with tax returns and the items contained in the return. Older people however spent more time to complete their tax return, probably because they thought they were well experienced in PIT and therefore did not seek help and advice (findings show they spent less time on *helptime*, *advicetime* and *supplytime*), but the actual fact is that they were struggling to complete the PIT return form. Moreover, the findings indicate that the majority of those aged 65 or more utilised manual filing, which may require more time to complete. On the other hand, it is also arguable that those aged 65 or more were simply more cautious while completing the form because they had ample time to do so as compared to other age groups.

⁶² The compulsory retirement age for public servant in Malaysia is either 55 (for those appointed before 1 October 2001), or 56 (for those appointed on or after 1 October 2001), or 58 (for those appointed on or after 1 July 2008). Further information can be obtained from the Public Service Department website: http://www.jpapencen.gov.my/english/faq_answer.html.

In contrast, *looktime* showed an inverted U-shape with the middle aged group having the highest average value (mean = 1.13 hours), and the age groups of 24 and under, and 65 and over having the lowest values (means = 0.58 hours and 0.49 hours, respectively). The possible reason could be because the middle aged group were taxpayers with many responsibilities to fulfil (in terms of money). As a result, they would make full use of all available deductions, reliefs or rebates applicable for them and all of the deductions should be supported with records. Details on the average compliance time components by age group can be found in Table 7.5.

Table 7.5: Average Compliance Time by Age

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		Learn-time	Keep-time	Look-time	Advice-time	Complete-time	Submit-time	Pay-time	Supply-time	Plan-time	Help-time	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Age:												
24 and under	4	0.38	6.25	0.58	0.75	1.75	0.40	0.38	0.25	1.25	0.33	12.31
25-44	101	0.87	3.00	0.64	0.59	1.63	1.26	1.44	1.69	1.41	1.40	13.93
45-54	97	1.14	1.78	1.13	0.40	1.01	0.47	1.20	1.07	1.07	0.20	9.48
55-64	27	0.93	1.63	0.69	0.26	1.05	0.39	0.29	0.12	0.38	0.10	5.84
65 and over	11	1.06	0.66	0.49	2.32	1.85	1.45	1.60	4.12	0.94	0.64	15.12

7.2.1.7 Average Compliance Time by Employment Status

Analysis of compliance times by employment status indicated that the self-employed respondents had the highest average compliance time (18.85 hours) among other characteristics. The main reason for high compliance times for self-employed people is due to high *supplytime* (mean = 5.40 hours), *helptime* (mean = 2.40 hours) and *paytime* (mean = 2.12 hours). The high supply time indicates the use of a tax agent for this group of respondents and the high *paytime* may indicate the instalment scheme that they undertook.⁶³

In contrast, employed respondents (mean = 9.14 hours) spent less than half of the self-employed compliance time. Specifically, employed respondents spent most on *keepetime* (mean = 2.62 hours) and *completetime* (mean = 1.23 hours). *Plantime* (mean = 0.20 hours) and *helptime* (mean = 0.22 hours) were the activities with

⁶³ If a taxpayer has income from business, rental and royalties, he or she is required to make six bi-monthly instalment payments, commencing from the month of March. The instalment dates will be prescribed in the notice of the instalments to be paid (Form CP500). The amount of each instalment will be estimated by the IRBM. Further explanation on CP500 can be retrieved from: <http://www.hasil.gov.my/goindex.php?kump=5&skum=1&posi=1&unit=5000&sequ=1&cariw=cp500>.

minimal compliance time by employed respondents. The low compliance costs for employed respondents as compared to the self-employed are expected as their tax affairs are considered less complex than those of the self-employed. Further details on the average time spent by taxpayers' employment status are shown in Table 7.6.

Table 7.6: Average Compliance Time by Employment Status

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Employment Status:												
Employed	181	0.93	2.62	0.70	0.43	1.23	0.91	0.94	0.20	0.95	0.22	9.14
Self-Employed	53	1.22	1.33	1.34	1.00	1.62	0.57	2.12	5.40	1.86	2.40	18.85
Other	8	0.57	0.98	0.44	0.35	1.34	0.70	0.69	0.19	0.25	0.75	6.26

7.2.1.8 Average Compliance Time by Ethnicity

Analysis of average compliance time by ethnicity indicated that the Chinese had the highest average total compliance time with 15.58 hours. This was followed by “other” ethnicity (mean = 10.52 hours), Indians (mean = 8.38 hours) and Malays (mean = 8.18 hours). Chinese respondents spent more time for almost all compliance time components. This situation is probably because many Chinese are self-employed. In contrast, Malays were the ethnic group that spent the lowest compliance time, with just about half of the Chinese compliance time. As most of them only earn income from salaries, the majority of them also used the e-filing system,⁶⁴ which may be the reason for the Malays spending less compliance time. Further information is shown in Table 7.7.

Table 7.7: Average Compliance Time by Ethnicity

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Ethnicity:												
Malays	119	0.57	1.83	0.52	0.36	1.12	0.56	0.80	0.84	0.86	0.72	8.18
Chinese	93	1.56	2.92	1.26	0.82	1.68	0.95	1.94	1.92	1.63	0.90	15.58
Indians	16	0.85	1.50	0.52	0.30	1.01	0.20	0.24	2.75	0.35	0.15	8.38
Other	14	0.80	2.79	1.00	0.70	1.01	2.47	0.70	0.10	0.84	0.10	10.52

⁶⁴ Refer to Table 5.4 in Section 5.3.3, Chapter 5 and Appendix P.

7.2.1.9 Average Compliance Time by Educational Attainment

Analysis of average compliance time by educational attainment revealed that the respondents with the lowest education level had the highest overall average compliance time (mean = 12.01 hours) and respondents with a diploma or equivalent level of education had the minimal overall average compliance time (mean = 6.07 hours). Specifically, respondents with educational attainment up to STPM spent more time for *supplytime* (mean = 2.00 hours), *paytime* (mean = 1.79 hours), *looktime* (mean = 1.07 hours) and *helptime* (mean = 0.96 hours) than the other groups.

The graduate group, who also spent more time than the overall average, indicate that they spent more *keepetime* (mean = 3.16 hours), *completetime* (mean = 1.86 hours), *submittime* (mean = 1.09 hours) and *advicetime* (mean = 0.63 hours) than the other educational groups. Meanwhile, the postgraduate group spent the longest average compliance time for *learntime* (mean = 2.02 hours) and *plantime* (mean = 2.94 hours), which indicates their profile as the most educated group.

The probable reasons for the group with the lowest educational attainment group spending more total time is because they were self-employed and hired a tax agent. That is why they spent more *supplytime* and *paytime* especially. Meanwhile, for the diploma group, the lowest time spent might be due to their simple tax affairs as compared to other groups. They spent fewer hours for all time components, particularly *supplytime* which indicates that the majority of them were not self-employed. Particulars on average compliance time by educational attainment are presented in Table 7.8.

Table 7.8: Average Compliance Time by Educational Attainment

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall Educational Attainment:	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Up to STPM	99	1.15	1.69	1.07	0.59	1.05	0.68	1.79	2.00	1.03	0.96	12.01
Diploma	35	0.72	2.16	0.63	0.37	0.94	0.40	0.26	0.03	0.36	0.22	6.07
Graduate	76	0.55	3.16	0.63	0.63	1.86	1.09	1.15	1.07	0.98	0.78	11.90
Postgraduate	28	2.02	2.45	0.90	0.49	1.45	0.45	0.48	0.04	2.94	0.39	11.57

7.2.1.10 Average Compliance Time by Annual Income Group and Tax Liability

Analysis on average compliance time by annual income groups revealed that the longest time spent for income tax compliance was by the RM70,000 to RM149,999 group (mean = 15.79 hours) and the lowest average time spent was by the highest annual income group (RM150,000 or more) (mean = 9.46 hours). Specifically, the RM70,000 to RM149,999 group spent more time on *paytime* (mean = 2.68 hours), *plantime* (mean = 2.32 hours) and *supplytime* (mean = 2.01 hours), which indicates that they were represented by self-employed respondents who hire a tax agent and had to spend more time in preparation for the tax payment. Meanwhile, the RM150,000 or more group spent minimal time, especially for *helptime* (mean = 0.17 hours), *submittime* (mean = 0.34 hours), *supplytime* (mean = 0.47 hours) and *paytime* (mean = 0.49 hours). Details of the average compliance time by annual income groups are presented in Table 7.9.

Analysis on average compliance time by tax liability groups indicated that the highest compliance time was by tax liability group RM14,000 to RM27,999 (mean = 23.70 hours). Higher *learntime* and *plantime* in the tax liability group RM14,000 to RM27,000 than the other groups indicated that this group was represented by the highest educational attainment respondents. In addition, the higher *supplytime* and *paytime* for this group indicates that there was also a majority of self-employed people in this group. Therefore, it is reasonable to say that the tax liability group of RM14,000 to RM27,000 had the highest time spent because the majority of them were graduates and postgraduates, and most of them were also self-employed people who had more complex tax affairs. Particulars of average compliance time components by tax liability group are presented in Table 7.9.

Table 7.9: Average Compliance Time by Annual Income Group and Tax Liability

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Annual Income:												
Less than RM36,000	79	0.59	1.84	0.59	0.79	1.69	1.29	1.45	1.44	0.80	0.31	10.79
RM36,000- RM69,999	105	1.14	2.87	0.66	0.36	0.90	0.68	0.46	1.09	0.80	0.86	9.81
RM70,000- RM149,999	45	1.30	1.90	1.78	0.50	1.56	0.51	2.68	2.01	2.32	1.24	15.79
RM150,000 or more	13	0.99	1.62	0.42	0.84	1.58	0.34	0.49	0.47	1.55	0.17	8.46
Tax Liability:												
No tax liability	66	0.91	3.90	0.69	0.44	1.35	0.90	0.26	1.63	0.42	0.99	11.49
Less than RM1,000	77	1.02	1.54	0.58	0.70	0.98	1.26	1.52	1.98	1.08	1.17	11.83
RM1,000- RM2,999	39	0.65	0.92	0.61	0.40	0.95	0.49	0.75	0.31	0.87	0.11	6.05
RM3,000- RM6,999	21	0.78	2.76	0.85	0.78	2.95	0.49	1.61	0.24	0.74	0.26	11.45
RM7,000- RM13,999	9	0.54	0.51	0.49	0.81	0.91	0.77	0.47	0.59	0.57	0.02	5.67
RM14,000- RM27,999	15	2.23	3.21	3.70	0.44	1.63	0.33	5.32	2.80	4.10	0.00	23.70
RM28,000 or more	10	1.14	1.88	0.43	0.28	1.69	0.12	0.52	0.06	4.55	0.39	11.05

7.2.1.11 Average Compliance Costs by Number of Income Source

Analysis of the impact of the number of sources of income on time spent indicated that respondents with only a single source of income spent the highest compliance time (mean = 11.54 hours) compared to respondents with two or more sources of income (mean = 8.86 hours). Although these findings are contrary to expectation, analysis of compliance time components showed a high *supplytime* (mean = 1.41 hours) and *paytime* (mean = 1.20 hours) which reflected that they were self-employed. Moreover, they also spent more *submittime* (mean = 0.90 hours) as compared to the more than one source of income group which possibly indicated that the majority of them used the manual filing. Details of the results are shown in Table 7.10.

Table 7.10: Average Compliance Costs by Number of Income Source

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
No. of Income Source(s):												
1	209	1.00	2.39	0.86	0.59	1.33	0.90	1.20	1.41	1.04	0.81	11.54
2 or more	33	0.88	1.59	0.66	0.29	1.26	0.37	1.17	0.90	1.63	0.11	8.86

7.2.1.12 Average Compliance Costs by Use of Tax Professional and Filing Methods

The engagement of a tax professional had a great impact on the average compliance time. In total, the average compliance time for those who engaged a tax professional was almost triple the compliance time of those who did not engage any tax professional. Specifically, those who engaged a tax professional spent more time, especially on *supplytime* (mean = 7.55 hours), *paytime* (mean = 3.15 hours), *helptime* (mean = 2.93 hours) and *plantime* (mean = 2.52 hours) than those who did not hire any tax professional (*supplytime* mean = 0.00 hours, *paytime* mean = 0.77 hours, *helptime* mean = 0.24 hours and *plantime* mean = 0.82 hours). The self-employed persons were the most probable group to hire a tax agent due to the complexity of their financial matters. Details are displayed in Table 7.11.

Analysis of time spent by filing methods indicated that the e-filing total time (mean = 9.84 hours) was less than manual filing (mean = 13.24 hours) by 3.4 hours (or about 26 percent). The majority of compliance time components indicated lower time spent for e-filing than manual filing, especially for *submittime* (e-filing mean = 0.42 hours and manual filing mean = 1.46 hours). In contrast, *helptime* for the e-filing (mean = 1.04 hours) showed a higher time spent than the manual filing (mean = 0.21 hours). Both methods indicated that *keeptime* is the highest compliance time-spent component, which indicated that the component was not affected by the e-filing system. Details are shown in Table 7.11.

Table 7.11: Average Compliance Costs by Use of Tax Professional and Filing Methods

Item	n	Compliance Time Components (hrs)										Total Time (hrs)
		<i>Learn-time</i>	<i>Keep-time</i>	<i>Look-time</i>	<i>Advice-time</i>	<i>Complete-time</i>	<i>Submit-time</i>	<i>Pay-time</i>	<i>Supply-time</i>	<i>Plan-time</i>	<i>Help-time</i>	
Overall	242	0.98	2.28	0.83	0.55	1.32	0.83	1.19	1.12	1.34	0.71	11.17
Use of Tax Professional:												
Yes	43	1.23	1.14	1.53	1.28	1.57	0.61	3.15	7.55	2.52	2.93	23.51
No	199	0.93	2.53	0.68	0.40	1.27	0.88	0.77	0.00	0.82	0.24	8.50
Filing Method:												
E-filing	147	0.83	2.18	0.64	0.54	1.01	0.42	0.81	1.20	1.16	1.04	9.84
Manual filing	95	1.22	2.43	1.13	0.57	1.79	1.46	1.79	1.56	1.07	0.21	13.24

7.2.1.13 Valuing Compliance Time

In converting the average compliance time into a monetary value, appropriate values of time are required. It was determined for this study that the values to be used were the mean and median reported values, and the average national wage rate calculated by author.⁶⁵ The mean and median values were trimmed for extreme values (outliers) in order to overcome the over-estimate or under-estimate problem of reporting time costs. In addition, the national wage rate calculated by the author was applied as a cross-check to the reported values.⁶⁶ This was done because the data on the national average wage rate for Malaysians was not available at the time of writing.⁶⁷

Comparison of compliance time costs between the three values indicated that median reported value was the lowest value and mean reported value was the highest. Application of the values to the time spent showed that compliance time ranged from RM223.40 to RM403.91 per respondent. A value using the national wage rate calculated by the author validated the estimations using mean and median reported values. Further details on the average compliance time in monetary values are shown in Table 7.12. The next section presents the results on monetary costs incurred by respondents in meeting their income tax obligations.

⁶⁵ Refer to Section 3.4.3, Chapter 3 for a detailed discussion on the value of time.

⁶⁶ This value has been used in previous studies as a cross-check (see, for example, Sandford et al., 1989, p. 68; Vaillancourt, 1989, p. 37).

⁶⁷ The gathering of statistics on wage and salaries was carried out for the first time by the Department of Statistics and the Department of Human Resources of Malaysia for 2007-2010 but the information was not available to the public until July 2012 (personal communication through emails with the Department of Statistics and the Department of Human Resources, Malaysia, December 2011). The author's calculation was determined using information from the Central Bank of Malaysia Annual Report 2011 (2011) and the Malaysia Economic Report 2010/11 (Treasury of Malaysia, 2010). As prescribed by the Malaysian Employment Act 1955 ("The Malaysian Employment Act 1955," 2006), 26 days per month and normal 8 working hours per day were used to estimate the hourly wage rate.

Table 7.12: Average Compliance Time Costs in Monetary Terms, 2010

Method of Valuing Time	Value per Hour (RM)	Average Time Spent (Hour)	Time Costs (RM)
Mean reported value	36.16	11.17	403.91
Median reported value	20.00	11.17	223.40
National wage rate*	25.17	11.17	281.15

Note: *Calculated by author.

7.2.2 Monetary Costs

7.2.2.1 Distribution of Monetary Costs

Monetary costs comprise tax professional fees and other incidental costs. The incidental costs were separated into IT expenditure and non-IT expenditure. The IT expenditure included tax software and packages, licence renewal and software training but excluded computer hardware costs as they are start-up and shared costs, and the non-IT expenditure included travelling expenditure, postage, telephone calls and purchasing books related to tax.

Distribution of monetary costs revealed that about 47 percent of the respondents did not incur any monetary costs to fulfil their tax obligations and 25 percent of respondents incurred less than RM100. Only about 18 percent of the respondents utilised a tax professional service and 15 percent incurred IT expenditure. Meanwhile, about 38 percent of respondents incurred the non-IT expenditure. Of those who incurred the IT and non-IT expenditure, the majority of them (about 83 percent of those who incurred IT expenditure and 71 percent of those who incurred non-IT expenditure) spent less than RM100 and many of them spent not more than RM20 for non-IT expenditure. There were also those who spent more than RM800 for non-IT expenditure (about 12 percent from those who incurred non-IT expenditure).

Examination of tax professional fees indicated about 65 percent of those who utilised a tax professional spent between RM100 and RM600 and about 16 percent spent more than RM800. The findings suggest that the majority of Malaysian PIT payers preferred to do their income tax by themselves or by using a free helper and were unwilling to spend a lot of money on tax matters. A reasonable explanation for this situation is the perception by respondents that PIT was not complicated or they were just unwilling to spend more money because the expenditures were not allowable

expenditure under Malaysian tax law. Particulars on the overall distribution of monetary costs and its components are shown in Table 7.13.

Table 7.13: Distribution of Total Monetary Costs and Its Components (N=242)

Monetary Costs (RM)	Tax Professional Fees		IT Expenditure		Non-IT Expenditure		Total Monetary Costs	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0.00	199	82.2	206	85.1	149	61.6	114	47.1
0.01 to 20.00	1	1.7	10	4.1	34	14.0	26	10.8
20.01 to 50.00	4	0.4	7	2.9	19	7.9	16	6.6
50.01 to 100.00	1	0.4	13	5.3	13	5.3	19	7.8
100.01 to 200.00	7	2.9	2	0.8	5	2.1	13	5.3
200.01 to 300.00	7	2.9	0	0.0	2	0.8	7	2.9
300.01 to 400.00	6	2.4	0	0.0	0	0.0	7	2.9
400.01 to 500.00	3	1.2	3	1.2	4	1.7	7	2.9
500.01 to 600.00	5	2.0	0	0.0	1	0.4	7	2.9
600.01 to 700.00	1	0.4	0	0.0	4	1.7	5	2.1
700.01 to 800.00	1	0.4	0	0.0	0	0.0	1	0.4
800.01 to 1000.00	2	0.8	1 ^b	0.0	10	4.1	11	4.5
More than 1000.00	5 ^a	2.0	0	0.4	1 ^c	0.4	9 ^d	3.7

Note: Maximum values were ^aRM8,000, ^bRM1,000, ^cRM1,031.75, and ^dRM8,200.

7.2.2.2 Average Monetary Costs

The results revealed that the average total monetary costs per respondent were RM259, which was made up of RM157 (61 percent) fees to tax professionals, RM84 (32 percent) of non-IT expenditure and RM18 (seven percent) of IT expenditure. The main characteristics of respondents owing high fees to tax professional were that they are self-employed (mean = RM671), in the highest annual income group (mean = RM780), and in the tax liability group of between RM7,000 to RM13,999 (mean = RM944).

The possible reason those with the highest annual income did not pay the highest tax liability is due to allowable deductions for business income that were higher than the salaried income. For example, a salaried taxpayer is not allowed to deduct capital allowance but it is allowable for the self-employed. Moreover, for Muslims paying zakat (religious payment), it is a rebate which can be offset directly against tax liability which lowers their tax liability although they earn an income of more than RM150,000 per annum.

Although not many respondents incurred IT expenditure for income tax purposes, it

was identified that the highest IT expenditure was spent by the self-employed respondents, who hired a tax professional, and were aged between 55 and 64, were of Indian ethnicity, had a low educational attainment (up to STPM), and had low annual income (less than RM36,000) and low tax liability (less than RM1,000). However, the main features of those who spent more for non-IT expenditure included those who were single, aged 24 or less, employed, from another ethnicity, were a graduate and had an annual income of less than RM36,000. Full data on average monetary costs and components is displayed in Table 7.14.

Table 7.14: Average Total Monetary Costs by Respondents' Characteristics, 2010

Item	n	Fees to Tax		IT		Non-IT		Total Monetary	
		Professional	Professional	Expenditure	Expenditure	Expenditure	Expenditure	Costs	Costs
		RM	%	RM	%	RM	%	RM	%
Overall	242	156.92	60.58	18.22	7.03	83.89	32.39	259.03	100.00
Gender:									
Male	147	214.15	75.80	18.58	51.26	86.15	51.73	318.88	65.71
Female	95	68.37	24.20	17.67	48.74	80.39	48.27	166.43	34.29
Marital Status:									
Single	36	156.94	49.39	11.19	36.24	101.19	55.02	269.32	50.57
Married	201	160.82	50.61	19.69	63.76	82.72	44.98	263.23	49.43
Other	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Age:									
24 and under	4	87.50	13.35	0.00	0.00	175.00	38.76	262.50	22.12
25-44	101	81.07	12.37	13.85	17.44	130.88	28.99	225.80	19.03
45-54	97	272.99	41.64	17.03	21.45	46.21	10.23	336.23	28.34
55-64	27	31.48	4.80	48.52	61.11	48.52	10.75	128.52	10.83
65 and over	11	182.52	27.84	0.00	0.00	50.91	11.28	233.43	19.67
Employment Status:									
Employed	181	13.26	1.93	10.80	18.90	93.87	43.51	117.93	12.29
Self-Employed	53	670.86	97.70	46.33	81.10	51.89	24.05	769.08	80.15
Other	8	2.50	0.36	0.00	0.00	70.00	32.44	72.50	7.56
Ethnicity:									
Malays	119	158.19	26.83	14.55	17.03	92.37	31.59	265.11	27.40
Chinese	93	159.60	27.07	20.46	23.95	82.38	28.17	262.44	27.13
Indians	16	250.47	42.47	35.00	40.96	0.00	0.00	285.47	29.51
Other	14	21.43	3.63	15.43	18.06	117.64	40.23	154.50	15.97
Education:									
Up to STPM	99	184.27	33.63	27.48	45.13	93.05	33.51	304.80	34.38
Diploma	35	7.14	1.30	3.57	5.86	25.57	9.21	36.28	4.09
Graduate	76	177.97	32.48	15.18	24.93	107.03	38.55	300.18	33.86
Postgraduate	28	178.57	32.59	14.66	24.08	52.01	18.73	245.24	27.66
Annual Income:									
Less than RM36,000	79	96.30	8.50	33.49	46.47	113.52	39.23	243.31	16.28
RM36,000- RM69,999	105	144.64	12.77	9.86	13.68	69.65	24.07	224.15	15.00
RM70,000- RM149,999	45	112.06	9.89	11.11	15.42	82.44	28.49	205.61	13.76
RM150,000 or more	13	779.82	68.84	17.61	24.43	23.74	8.20	821.17	54.96
Tax Liability:									
No tax liability	66	98.60	4.85	11.70	11.86	66.39	12.38	176.69	6.62
Less than RM1,000	77	50.00	2.46	36.21	36.69	121.09	22.59	207.30	7.77
RM1,000-RM2,999	39	100.65	4.95	4.39	4.45	84.52	15.76	189.56	7.11
RM3,000-RM6,999	21	583.33	28.70	5.00	5.07	57.62	10.75	645.95	24.21
RM7,000-RM13,999	9	944.44	46.46	11.11	11.26	166.67	31.09	1122.22	42.07
RM14,000- RM27,999	15	77.00	3.79	24.27	24.59	30.00	5.60	131.27	4.92
RM28,000 or more	10	178.77	8.79	6.00	6.08	9.86	1.84	194.63	7.30
No. of Income Source(s):									
1	209	163.58	58.77	17.11	40.34	88.15	60.78	268.84	76.59
2 or more	33	114.78	41.23	25.30	59.66	56.88	39.22	82.18	23.41
Use of Tax Professional:									
Yes	43	883.15	100.00	52.44	82.88	84.42	50.19	1020.01	91.51
No	147	0.00	0.00	10.83	17.12	83.77	49.81	94.60	8.49
Filing Method:									
E-filing	147	191.99	65.16	27.21	86.30	81.03	47.85	300.23	60.59
Manual filing	95	102.66	34.84	4.32	13.70	88.30	52.15	195.28	39.41

7.2.3 Total Compliance Costs

Total compliance costs were derived by adding the compliance time costs and monetary costs for each case. The results indicated that the average compliance costs for each respondent was RM663 using the mean reported value, RM482 using the median value and RM540 using the national wage rate calculated by the author. Using the mean reported value, time costs represented 61 percent of total compliance costs and 39 percent were monetary costs.

The findings using the mean reported value revealed that high compliance costs were primarily characterised by employment status (self-employed), annual income (RM150,000 or more), education attainment (high education levels) and tax liability (tax liability more than RM3,000). Respondents with low compliance costs were basically characterised by other marital status, aged 55 to 64 (retirement age for most Malaysians), other employment status (mostly retired persons), having diploma or equivalent academic qualification, having annual income less than RM70,000 or tax liability less than RM3,000. Details on total compliance costs and components are displayed in Table 7.15.

Table 7.15: Total Compliance Costs Estimates, 2010

Value of Time	Value per Hour (RM)	Time Costs		Monetary Costs		Total Compliance Costs (RM)
		Hour	%	RM	%	
Mean reported value	36.16	403.91	60.92	259.03	39.07	662.94
Median reported value	20.00	223.40	46.31	259.03	53.69	482.43
National wage rate*	25.17	281.15	52.05	259.03	47.95	540.18

Note: *Calculated by author.

Analysis of total compliance costs by annual income groups indicated that the lowest annual income group suffered the largest percentage of compliance costs (almost 3 percent), although the highest annual income group showed the highest absolute compliance costs figure (RM1,034 to RM2,348). The proportion of compliance costs from annual income decreases with the increase of annual income to only 0.35 percent for the highest income group. This finding suggests that the compliance costs for PIT in Malaysia were regressive. Details on compliance costs by annual income group are presented in Table 7.16.

Table 7.16: Compliance Costs by Annual Income Groups, 2010

	n	Time Costs (RM)		Monetary Costs (RM)	Total Compliance Costs (RM)		Percentage of Annual Income* (%)
		Mean	Median		Mean	Median	
Less than RM36,000	79	226.48	271.58	243.31	469.79	514.89	2.60
RM36,000-RM69,999	105	262.03	246.92	224.15	486.18	471.07	0.92
RM70,000-RM149,999	45	681.34	397.43	205.61	886.95	603.04	0.81
RM150,000 or more	13	1,526.78	212.94	821.17	2,347.95	1,034.11	0.35

Note: *Percentage was calculated based on mean time costs. The maximum amount for the highest annual income group was limited to RM1.2 million.

Analysis by other respondent characteristics indicated that the characteristics of respondents with high compliance costs were mainly those who hired a tax professional, were self-employed, and were from the Chinese ethnic group. Nonetheless, the compliance costs by filing methods (e-filing and manual filing) did not indicate a large difference (average e-filing costs: between RM497 and RM658; average manual filing costs: between RM460 to RM670). Further details are shown in Table 7.17.

Table 7.17: Compliance Costs by Selected Respondents' Characteristics, 2010

	n	Time Costs (RM)		Monetary Costs (RM)	Total Compliance Costs (RM)	
		Mean	Median		Mean	Median
Gender:						
Male	147	403.83	227.00	318.88	722.71	545.88
Female	95	369.17	217.80	166.43	535.60	384.23
Marital Status:						
Single	36	317.68	159.40	269.32	587.00	428.72
Married	201	419.96	237.60	263.23	683.19	500.83
Other	4	164.11	130.40	0.00	164.11	130.4
Age:						
24 and under	4	106.97	246.20	262.50	369.47	508.70
25-44	101	468.47	278.60	225.80	694.27	504.40
45-54	97	382.42	189.60	336.23	718.65	525.83
55-64	27	208.49	116.80	128.52	337.01	245.32
65 and over	11	428.65	302.40	233.43	662.08	535.83
Employment Status:						
Employed	181	306.37	182.80	117.93	424.30	300.73
Self-Employed	53	905.18	377.00	769.08	1674.26	1146.08
Other	8	108.74	125.20	72.50	181.24	197.70
Ethnicity:						
Malays	119	320.41	163.60	265.11	585.52	428.71
Chinese	93	566.49	311.60	262.44	828.93	574.04
Indians	16	188.05	167.60	285.47	473.52	453.07
Other	14	262.68	210.40	154.50	417.18	364.90
Education:						
Up to STPM	99	335.56	240.20	304.80	640.36	545.00
Diploma	35	162.43	121.40	36.28	198.71	157.68
Graduate	76	545.97	238.00	300.18	846.15	538.18
Postgraduate	28	614.48	231.40	245.24	859.72	476.64
No. of Income Source(s):						
1	209	366.39	230.80	268.84	635.24	499.64
2 or more	33	568.10	177.20	196.96	765.06	374.16
Use of Tax Professional:						
Yes	43	1,252.85	470.20	1,020.01	2,272.86	1490.21
No	147	275.91	170.00	43.29	319.20	213.29
Filing Method:						
E-filing	147	357.49	196.80	300.23	657.72	497.03
Manual filing	95	475.18	264.80	195.28	670.46	460.08

7.3 Effect of E-Filing on Compliance Time

7.3.1 Effect of E-Filing on the Distribution of Compliance Time

Comparison of time distribution between e-filing and manual filing users revealed that more e-filing users (more than 63 percent) spent less than six hours as compared to manual filers (about 54 percent). However, when examining the total number of respondents who spent ten or less hours, the result was almost the same (80 percent for e-filers and 79 percent for manual filers). The distribution for more than ten hours of time spent also did not show any significant difference between e-filing and manual filing users. The results suggest that the e-filing only had an impact for those

who spent less than six hours for their personal tax matters and did not have much impact on those who required more hours for their tax matters. The full results on distribution of time by e-filing and manual filing users are shown in Table 7.18.

Table 7.18: Distribution of Compliance Time by Filing Methods

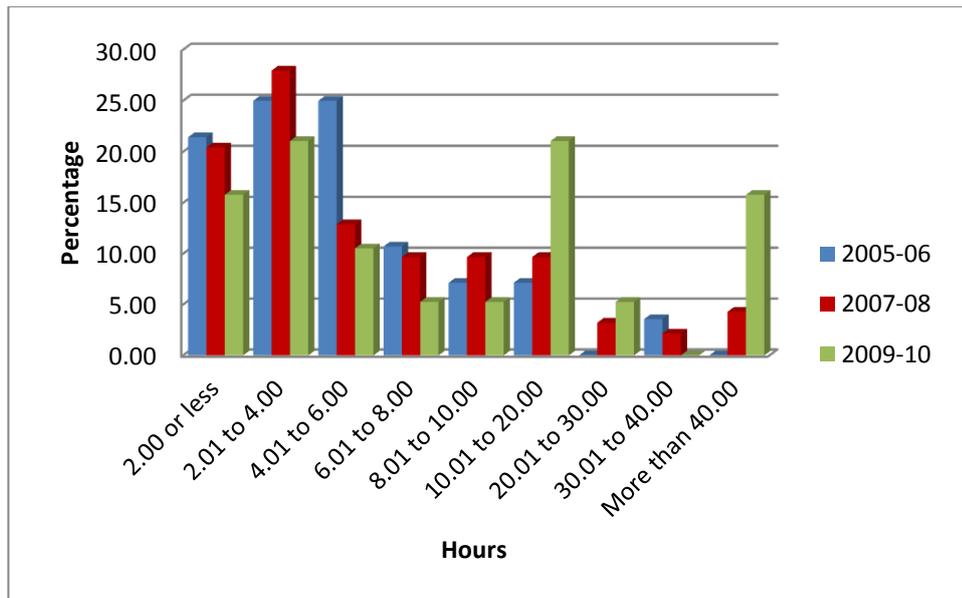
Hours	E-Filing (N=147)		Manual Filing (N=95)	
	Number	Percentage	Number	Percentage
2.00 or less	30	20.4	18	18.9
2.01 to 4.00	40	27.2	23	24.2
4.01 to 6.00	23	15.6	10	10.5
6.01 to 8.00	13	8.8	12	12.6
8.01 to 10.00	12	8.2	12	12.6
10.01 to 20.00	15	10.2	9	9.5
20.01 to 30.00	4	2.7	4	4.2
30.01 to 40.00	3	2.0	1	1.1
More than 40.00	7	4.8	6	6.3

Further investigation of the distribution of time spent for e-filers revealed that the e-filing experience (measured by the first year of e-filing) played a reasonably important role. As depicted by Figure 7.2, more new e-filers (first year of e-filing was either 2009 or 2010)⁶⁸ were in the range of 10.01 to 20.00 hours (about 21 percent) and more than 40 hours (about 16 percent) as compared to more experienced e-filers (first years of e-filing were either 2005-06 or 2007-08).⁶⁹ Meanwhile, the percentage for 4.01 to 6.00 hours and less was dominated by the experienced e-filers, that is those whose first years of e-filing was 2005-06 (about 71 percent in total) or 2007-08 (about 61 percent in total) as compared to the new e-filers (about 47 percent in total).

⁶⁸ The respondents whose first year of e-filing was either 2009 or 2010 were grouped together as 2009-10 due to low number of cases in each sub-category.

⁶⁹ The respondents whose first year of e-filing was either 2005 or 2006 and 2007 or 2008 were grouped as 2005-06 and 2007-08 respectively due to the low number of cases in each sub-category.

Figure 7.2: Distribution of Time Spent by First Year of E-Filing



Note: Due to the low number of respondents in each sub-component, respondents from two years were combined together, that is, those whose first year was 2005 or 2006 were combined into 2005-06, whose first year was 2007 or 2008 were combined as 2007-08 and whose first year was 2009 or 2010 were combined as 2009-10.

7.3.2 Effect of E-Filing on Average Total Compliance Time Costs

Overall, the average time spent by respondents in meeting their income tax obligations was about 11.7 hours per respondent. E-filing consumed 9.84 hours while manual filing took 13.24 hours. This means that, on average, e-filing saved about 3.4 hours of time or a saving of about 26 percent.

Comparison of time costs indicated that, using the mean as the value of time, e-filing saved about RM118 or about 25 percent from manual filing time costs. The result is also almost similar if using a median to value the time spent. Further statistical analyses using the Mann-Whitney U test are presented in later sections to examine whether the differences were statistically significant or otherwise. The average compliance time costs using mean and median values by filing methods are shown in Table 7.19.

Table 7.19: Average Compliance Time Costs, 2010

Method	Average Compliance Time (hr)	Hourly Value of Time (RM)		Time Costs (RM)	
		Mean	Median	Mean	Median
All	11.17	36.16	20.00	403.91	223.40
E-filing	9.84	36.33	20.00	357.49	196.80
Manual filing	13.24	35.89	20.00	475.18	264.80
Difference (hr/RM)	(3.4)			(117.69)	(68.00)
Difference (%)	(25.68)			(24.77)	(25.68)

7.3.3 Effect of E-Filing on Compliance Time by Time Components

Investigations of mean and median hours by compliance time components between e-filing and manual filing revealed that the average compliance time for e-filing (9.84 hours) was less than manual filing (13.24 hours) by about 26 percent. The components with the highest difference were *helptime* (395 percent different), *submittime* (77 percent different), *paytime* (55 percent different), *completetime* (44 percent different) and *looktime* (43 percent different). Specifically, the e-filers spent about four times longer for *helptime* than the manual filers. However, the e-filers spent a shorter time for *submittime*, *paytime*, *completetime* and *looktime*. The details of time spent between manual and e-filing according to ten time components are presented in Table 7.20.

Table 7.20: E-Filing and Manual Filing by Time Components

Time Component	E-Filing (N=147) (Hours)	Manual Filing (N=95) (Hours)	Difference	
			In Hours	In Percentage
<i>learntime</i>	0.83	1.22	-0.39	-31.97
<i>keepetime</i>	2.18	2.43	-0.25	-10.29
<i>looktime</i>	0.64	1.13	-0.49	-43.36
<i>advicetime</i>	0.54	0.57	-0.03	-5.26
<i>completetime</i>	1.01	1.79	-0.78	-43.58
<i>submittime</i>	0.42	1.46	-1.04	-71.23
<i>paytime</i>	0.81	1.79	-0.98	-54.75
<i>supplytime</i>	1.20	1.56	-0.36	-23.08
<i>plantime</i>	1.16	1.07	0.09	8.41
<i>helptime</i>	1.04	0.21	0.83	395.24
Total	9.84	13.24	-3.40	-25.68

7.3.4 Effect of E-Filing on Average Compliance Time by Gender, Marital Status and Age

Comparison of compliance time between e-filing and manual filing by gender indicated that both male and female respondents benefitted from e-filing. Both

genders who used e-filing spent about 24 to 28 percent less time than those who did manual filing. However, comparison by marital status indicated that married couples spent less time under the e-filing system by more than 30 percent. Single respondents showed that manual filing is better for them because the single respondents spent less than four hours for manual filing, but more than nine hours for e-filing.

Time spent by age showed that the time was slightly increased, first from 24 and under, to 25 to 44 and then decreased, with the increase of age under the e-filing system. In contrast, the time spent under manual filing increased by age but was very low for those aged between 55 and 64. As a result, the oldest age group saved more than three-quarters of the time under the e-filing system. However, it should also be noted that the older people who used manual filing might have had more complex tax affairs than those who used e-filing. Details of the results on average time spent by gender, marital status and age between e-filing and manual filing are shown in Table 7.21.

Table 7.21: E-Filing and Manual Filing Time by Gender, Marital Status and Age

	E-Filing		Manual Filing		Difference	
	n	Hours	n	Hours	In Hours	In Percentage
Gender:						
Male	91	10.12	56	13.35	-3.23	-24.19
Female	56	9.38	39	13.07	-3.69	-28.23
Marital Status:						
Single	27	9.43	9	3.57	5.86	164.15
Married	118	10.01	83	14.55	-4.54	-31.20
Age:						
24 and under	4	12.31	0	N/A	N/A	N/A
25 to 44	69	13.83	32	14.15	0.32	-2.26
45 to 54	54	5.87	43	14.01	-8.14	-58.10
55 to 64	15	7.26	12	4.07	3.19	78.38
65 and over	3	4.39	8	19.15	14.76	-77.08

7.3.5 Effect of E-Filing on Average Compliance Time by Employment Status and Ethnicity

All types of employment indicated that time spent under the e-filing system was less than the manual filing system. The self-employed and other types of employment group, which were mostly retired people, saved more than 30 percent of time from the e-filing system. In terms of ethnicity, although it is found that many Chinese preferred manual filing, the Chinese who used e-filing really benefitted from the

system as compared to those who used the manual system. This may be due to less time spent for *completetime* and *submittime* under the e-filing system as shown in Appendix O.⁷⁰

Malays did not show much difference between e-filing and manual filing. However, it is surprising to find that Malays who used manual filing actually spent less time than on the e-filing system. The possible explanation may be due to more time being spent on *learntime* and *advicetime* under the e-filing system as shown in Appendix O. Indians also benefitted from the e-filing system due to the same reasons as for Chinese. Other ethnicities, mainly the bumiputeras (indigenous) indicated that they coped better under the manual filing system than the e-filing system. The main reason for higher time spent under e-filing is that those “other” who used the e-filing system spent more time for *keeptime* (mean = 5.25 hour) as compared to manual filers (mean = 0.33). This suggests that the e-filing system did not affect all filing activities, especially record-keeping activities. Details of the average time spent by ethnicity are presented in Table 7.22.

Table 7.22: E-Filing and Manual Filing Time by Employment Status and Ethnicity

	E-Filing		Manual Filing		Difference	
	n	Hours	n	Hours	In Hours	In Percentage
Employment Status:						
Employed	114	8.53	67	10.17	-1.64	-16.13
Self-Employed	30	15.31	23	23.45	-8.14	-34.71
Other	3	4.50	5	7.32	-2.82	-38.52
Ethnicity:						
Malays	86	8.63	33	6.98	1.65	23.64
Chinese	48	12.43	45	18.95	-6.52	-34.41
Indians	6	4.61	10	10.65	-6.04	-56.71
Other	7	11.33	7	9.70	1.63	16.80

7.3.6 Effect of E-Filing on Average Compliance Time by Level of Education

A comparison between e-filing and manual filing time by level of education indicated that only the lowest level of educational attainment (up to STPM) spent fewer hours under the e-filing system as compared to manual filing by more than 50 percent. The reasons for higher time spent for e-filers from higher education level groups are mainly due to higher time spent for *learntime*, *advicetime* and *helptime* as

⁷⁰ Appendix O presents a detailed comparison of e-filing and manual filing time by time components.

compared to manual filers. The findings suggest that the possible effect of start-up costs may have presented a problem for some of the e-filers. Details on average hours by level of education for e-filing and manual filing are presented in Table 7.23.

Table 7.23: E-Filing and Manual Filing Time by Level of Education

	E-Filing		Manual Filing		Difference	
	n	Hours	n	Hours	In Hours	In Percentage
Level of Education:						
Up to STPM	52	7.99	47	16.46	-8.47	-51.46
Diploma	24	6.96	11	4.13	2.83	68.52
Graduate	50	12.03	26	11.65	0.38	3.26
Postgraduate	21	12.46	7	8.89	3.57	40.16

7.3.7 Effect of E-Filing on Average Compliance Time by Annual Income and Tax liability

A comparison of e-filing and manual filing time by annual income groups showed a U-shaped trend for e-filers but a mixed trend for manual filers. It was found that the e-filers who received an annual income of less than RM36,000 spent less than half of the manual filers' time in the same annual income group. The annual income group of RM70,000 to RM149,999 also spent less time under the e-filing system as compared to the manual filing system by almost 60 percent. Analysis by time components indicated that the e-filers from this group spent less time for *learntime*, *looktime*, *submittime*, *paytime*, *supplytime* and *plantime* as compared to the manual filers in the same group.⁷¹

Comparison by tax liability indicated that those who did not pay any tax liability did not benefit so much from the e-filing system as they spent more time than the manual filers in the same group. The findings in the highest annual income group (e-filers spent slightly more time than manual filers) did not correspond with the group having the highest tax liability (e-filers spent very minimal time). First, it is possibly due to the fact that the highest annual income holder did not necessarily fall into the highest tax liability category, due to zakat payments or business/non-business deductions. Secondly, it is also possible that there was the effect of start-up costs for certain annual incomes and tax liability groups because, as the details in Appendix O indicate, the high e-filing time was mainly due to greater *advicetime*, *learntime* and

⁷¹ Refer to Appendix O for the full comparison of compliance time components between e-filing and manual filing.

helptime. Details of average time spent for tax liability categories by filing methods are depicted in Table 7.24.

Table 7.24: E-Filing and Manual Filing Time by Annual Income

	E-Filing		Manual Filing		Difference	
	n	Hours	n	Hours	In Hours	In Percentage
Annual Income:						
Less than RM36,000	43	6.86	36	15.48	-8.62	-55.68
RM36,000 to RM69,999	62	11.00	43	8.10	2.9	35.80
RM70,000 to RM149,999	34	11.77	11	28.22	-16.45	-58.29
RM150,000 or more	8	8.58	5	8.27	0.31	3.75
Tax Liability:						
No Tax	31	12.47	35	10.62	1.85	17.42
Less than RM1,000	48	11.05	29	13.13	-2.08	-15.84
RM1,000 to RM2,999	26	6.33	13	5.53	0.8	14.47
RM3,000 to RM6,999	11	11.20	10	11.74	-0.54	-4.60
RM7,000 and more*	31	7.75	8	39.44	-31.94	-80.98

7.3.8 Effect of E-Filing on Average Compliance Time by the Use of tax Professional and Number of Income Source

In general, respondents who engaged a tax professional in performing their tax obligations indicated a higher average time spent than those who did not. Separation of respondents by filing methods also indicated that those who hired a tax professional spent more compliance time than those who did not hire one, for both methods. For both groups, respondents had less compliance time under the e-filing method than the manual filing method (between 19 to 21 percent less).

Comparison by number of income source showed that those receiving only one source spent less time under e-filing as compared to manual filing by about 30 percent. However, those who received more than one source of income spent less time under the manual filing than the e-filing system. The reason for the high time spent for 2 or more income source groups under the e-filing method is due to higher time being devoted to record-keeping as compared to those who used manual filing. Again, this finding suggests that e-filing cannot solve the high time spent for record-keeping activities. Further details on the comparison of average compliance times between manual and e-filing by respondents' characteristics are presented in Table 7.25.

Table 7.25: E-Filing and Manual Filing Time by Use of Tax Professional and Number of Income Source

	E-Filing		Manual Filing		Difference	
	n	Hours	n	Hours	In Hours	In Percentage
Use of Tax Professional						
Yes	124	21.26	75	26.1	-4.84	-18.54
No	23	7.72	20	9.81	-2.09	-21.30
Number of Income Source						
1	124	9.83	85	14.03	-4.2	-29.94
2 or more	23	9.87	10	6.51	3.36	51.61

7.3.9 Statistical Effect of E-Filing on Time Spent

Although differences were found in the previous sections using the average time spent, it is important to test whether there was a statistically significant difference. As the data for compliance time was not normally distributed, the non-parametric test was utilised, namely, the Mann-Whitney U test. Theoretically, the non-parametric tests examine the differences in the average rank and total ranks instead of the mean in the *t*-test. If the rank values are almost similar, then the distribution of the values between the independent samples is said to have no significant difference (Field, 2009, p. 548).

A Mann-Whitney U test was carried out between compliance time under the e-filing system and compliance time under manual filing system. For total compliance time, the findings indicated that there was a non-significant difference between compliance time under the e-filing system and that under the manual system, $U = 4,803.00$, $p = ns$. However, the mean rank of manual filing (102.04) was slightly higher than the mean rank of e-filing method (98.77), which indicated that manual filing had a higher mean recognition score than did the e-filing although there was not a significant difference.

Further investigation using the Mann-Whitney U test was also carried out on each compliance time component between the e-filing and manual filing methods. The results revealed that only *advicetime* ($U = 5,450.50$, $p < 0.05$) and *helptime* ($U = 6,108.50$, $p < 0.05$) were statistically significantly different at the 0.05 level. Examination of the average mean rank indicated that e-filers (131.92) had higher mean ranks than the manual filers (105.37) for *advicetime*. Similar results for *helptime* (e-filers mean rank = 127.45; manual filers mean rank = 112.30) was also

discovered. This indicated that e-filers spent longer compliance time than the manual filers for *advicetime* and *helptime*.

As indicated in Table 7.25, respondents who did not use any tax professional gained a higher saving under the e-filing system as compared to those who hired one. Therefore, it was hypothesised that removing those who hired a tax professional would increase the statistically significant difference between the e-filing and manual filing time for other time components; for example *completetime* or *submittime* since these two were the most relevant in achieving the objective of the e-filing system which is to facilitate the filing process.

Further analysis using the Mann-Whitney U test by removing those who hired a tax professional was performed. The test revealed that, in addition to *advicetime* ($U = 3,870.00$, $p = 0.04$) and *helptime* ($U = 3,930.50$, $p = 0.01$), there was also a statistically significant difference for *submittime* ($U = 5,654.00$, $p = 0.01$) between e-filing time and manual filing time (but not for *completetime*). Moreover, *plantime* ($U = 3,961.50$, $p = 0.07$) was also statistically significantly different between e-filing and manual filing at the 0.10 level. The results on *submittime* indicated that the mean ranks for e-filing and manual filing were 91.90 and 113.39, respectively, meaning that e-filers spent a shorter time for *submittime* than manual filers. The results on *plantime* showed that the mean rank for e-filing was 105.55 while manual filing was 90.82, which indicated that e-filers tended to spend more time for *plantime* than the manual filers.

The Mann-Whitney U test was also performed to examine the difference between e-filing and manual filing time by classification of respondents according to their characteristics. The results indicated that the compliance time components were statistically significantly different for a number of respondent categories. Mainly, the results showed that there was a significant difference for *advicetime*, *submittime*, *helptime* and *completetime* between e-filers and manual filers.

It was found that *completetime* was statistically significantly different between e-filing and manual filing for the lowest educational attainment group at five percent confidence level. Total compliance time was also found to be statistically significantly different for the Indian ethnic group, up to STPM education group, less

than RM36,000 annual income group and less than RM1,000 tax liability group. A summary of the statistical results of compliance time is presented in Table 7.26. Details on time components that were found to be statistically significantly different between e-filing and manual filing by respondents characteristics are presented in Appendix O and details on the Mann-Whitney U test results before and after removal of engagement of a tax professional are shown in Appendix L and Appendix M respectively.

Table 7.26: Summary of Statistical Results on Compliance Time

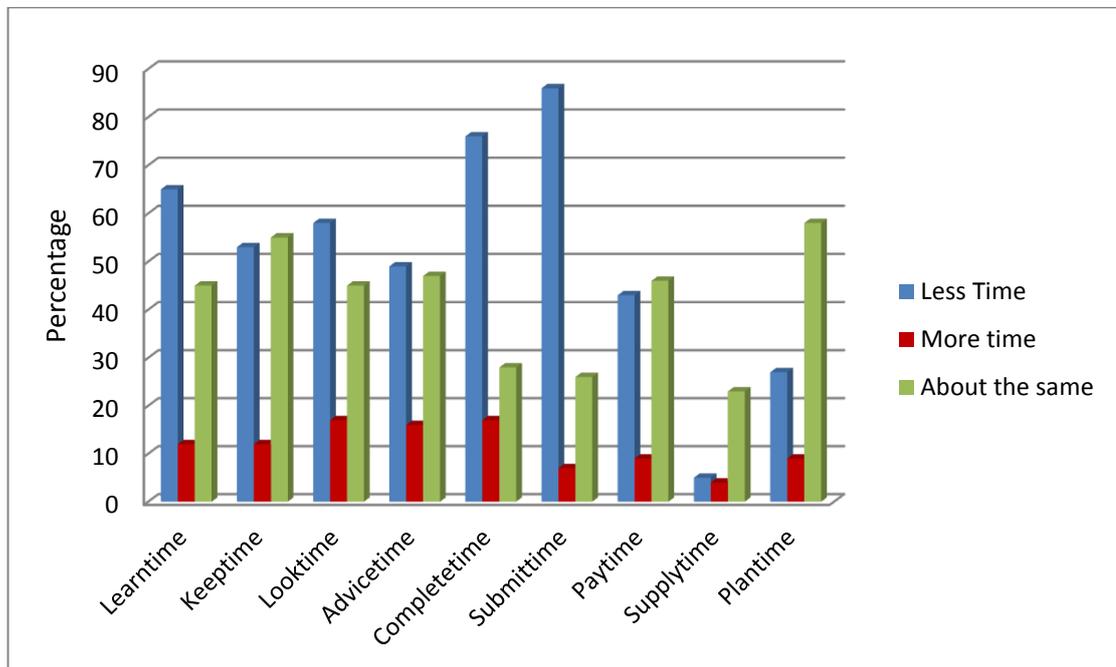
Component	Statistical Result
1. <i>learntime</i>	No significant difference between e-filers' and manual filers' time.
2. <i>keepertime</i>	No significant difference between e-filers' and manual filers' time.
3. <i>looktime</i>	No significant difference between e-filers' and manual filers' time.
4. <i>advicetime</i>	Statistically significant difference between e-filers' and manual filers' time. E-filers spent more time on this item.
5. <i>completetime</i>	Statistically significant for the lowest educational attainment group. E-filers spent less time under this category. Overall, no significant different.
6. <i>submittime</i>	Statistically significant after removing those who hired tax professionals. E-filers spent less time on this item.
7. <i>paytime</i>	No significant difference between e-filers' and manual filers' time.
8. <i>supplytime</i>	No significant difference between e-filers' and manual filers' time.
9. <i>plantime</i>	No significant difference between e-filers' and manual filers' time.
10. <i>helptime</i>	Statistically significant difference between e-filers' and manual filers' time. E-filers spent more time on this item.
<i>Total Time</i>	No significant difference between e-filers' and manual filers' time for all respondents. But statistically significant difference for Indians ethnicity group, lowest educational attainment group, low annual income group and low tax liability group. For all categories, e-filers show less time than manual filers.

7.3.10 Perceptions on the Effect of E-Filing on Time Spent by E-Filers

In order to understand the perceptions of people who had used e-filing on compliance time and its components, they were asked in the questionnaire to indicate their opinion as to whether e-filing saved time or otherwise or did not make any difference compared with manual filing. As shown in Figure 7.3, the majority of e-filers (72.3 percent) agreed that submittime was the component that really consumed less time under e-filing than manual filing. About 63 percent agreed that completetime under the e-filing system was more efficient than manual filing and about 53 percent thought learntime was less efficient under the e-filing system than their previous experience using manual filing. Among the compliance time components that were perceived as having no difference under e-filing and manual filing by the e-filers were supplytime (71.9 percent), plantime (61.7 percent), paytime (46.9 percent),

keep time (46 percent) and advice time (42 percent). The results for the frequency of respondents according to their perceptions are presented in Figure 7.3.

Figure 7.3: Perceptions of E-Filers on Compliance Time Components, 2010



Further analysis of e-filers’ perceptions of time components was performed by reference to year(s) of e-filing experience. Respondents were classified into three groups according to their first year of e-filing: (1) 2005-2006, (2) 2007-2008 and (3) 2009-2010. The analysis indicated that the majority of the new e-filers (2009-2010 group) felt that the e-filing compliance time for all components was about the same as manual filing time except for *completetime* and *submittime*. Still, the percentage for *completetime* (35.8 percent) and *submittime* (41.7 percent) for the 2009-2010 group was considered higher as compared to the 2007-2008 and 2005-2006 groups.

The findings were expected considering that the system was new to them and they needed to spend start-up time to familiarise themselves with it. However, it should be noted that some items had a very small number of cases due to a small number of usable samples in this study. As the results might be over- or under-stated, it is suggested that great caution should be taken in interpreting these results. Details on the perceptions of e-filers for compliance time components by the first year of e-filing are depicted in Table 7.27.

Table 7.27: Perceptions of E-Filers for Compliance Time Components by First Year of E-Filing

First Year of E-Filing	Less Time		More Time		About the Same	
	Number	Percentage	Number	Percentage	Number	Percentage
2005-2006:						
<i>learntime</i>	10	45.5	3	13.6	9	40.9
<i>keepetime</i>	9	40.9	1	4.5	12	42.9
<i>looktime</i>	8	36.4	5	22.7	9	40.9
<i>advicetime</i>	8	38.1	3	14.3	10	47.6
<i>completetime</i>	14	63.6	4	18.2	4	18.2
<i>submittime</i>	17	77.3	2	9.1	3	13.6
<i>paytime</i>	8	42.1	1	5.3	10	52.6
<i>supplytime</i>	0	0.0	0	0.0	7	100
<i>plantime</i>	6	31.6	1	5.3	12	63.2
2007-2008:						
<i>learntime</i>	65	53.7	12	9.9	44	36.4
<i>keepetime</i>	53	44.5	12	10.1	54	37.5
<i>looktime</i>	58	48.7	16	13.4	45	37.8
<i>advicetime</i>	49	44.1	15	13.5	47	42.3
<i>completetime</i>	76	63.3	17	14.2	27	22.5
<i>submittime</i>	86	72.9	7	5.9	25	21.2
<i>paytime</i>	43	44.3	9	9.3	45	46.4
<i>supplytime</i>	5	15.6	4	12.5	23	71.9
<i>plantime</i>	27	29.0	9	9.7	57	61.3
2009-2010:						
<i>learntime</i>	3	23.1	2	15.4	8	61.5
<i>keepetime</i>	3	25.0	0	0.0	9	75.0
<i>looktime</i>	4	33.3	1	8.3	7	58.3
<i>advicetime</i>	3	23.1	2	15.4	8	61.5
<i>completetime</i>	5	38.5	3	23.1	5	38.5
<i>submittime</i>	6	50.0	1	8.3	5	41.7
<i>paytime</i>	3	23.1	3	23.1	7	53.8
<i>supplytime</i>	1	16.7	1	16.7	4	66.7
<i>plantime</i>	2	18.2	1	9.1	8	72.7

7.4 Effect of E-Filing on Monetary Costs

7.4.1 General Effect

Comparison of average monetary costs and their components indicated that, in total, an e-filing user incurred more monetary costs than the manual filing user by 53 percent or about RM103. The difference was contributed mainly by professional fees and IT expenditure. This suggests that many of those who hired a tax professional used e-filing, which highlights the role of the tax professional in promoting the e-filing system. The e-filing user incurred less non-IT expenditure than the manual filer, which proves that the e-filing method reduced many of the incidental costs to filing a PIT return such as postage and travelling. The details on the comparison between e-filing and manual filing average monetary costs and components are displayed in Table 7.28.

Table 7.28: Average Compliance Money Costs and Components, 2010

	E-Filing		Manual Filing		Difference	
	RM	%	RM	%	RM	%
Total	300.23	100	195.28	100	104.95	53.74
Professional Fees	191.99	63.95	102.66	52.57	89.33	89.33
IT expenditure	27.21	9.06	4.31	2.21	22.90	531.32
Non-IT expenditure	81.03	27.00	88.30	45.22	-7.27	-8.23

7.4.2 Statistical Effect of E-Filing on Monetary Costs

A statistical analysis using the Mann-Whitney U test was directly performed to analyse the difference of monetary costs and its components in relation to e-filing and manual filing. It was hypothesised that the distribution of monetary costs and its components were the same for the e-filing and manual filing methods. The results from the Mann-Whitney U test indicated that, at the total monetary costs level, there was no statistically significant difference between the e-filing and manual filing groups ($U = 7,428.50$, $p = ns$), which showed that the hypothesis is accepted.

However, further analysis on components of monetary costs revealed that distribution of IT expenditure had a statistically significant difference across the filing methods ($U = 6,002.00$, $p = 0.00$). The mean rank for e-filing (128.17) was higher than for manual filing (111.18), which indicated that IT expenditure was higher for e-filers than for the manual filers. Statistical results from Mann-Whitney U test for monetary costs are displayed in Appendix N.

7.5 Effect of E-Filing on Total Compliance Costs

7.5.1 Overall Effect

Overall, total compliance costs for e-filing and manual filing indicate a very small difference of between two percent and eight percent only. However, compliance time costs for e-filing were lower than for manual filing by about 25 percent either using mean, median or national wage rates calculated by author, while compliance money costs were higher for e-filing by about 53 percent than for the manual filing system. The findings suggest that e-filing saved compliance time but the offset between time and money costs for both methods resulted in similarity for e-filing and manual filing compliance costs. Details on the comparison between e-filing and manual filing compliance costs using three values of time (mean, median and national average

wage) are shown in Table 7.29.

Table 7.29: Total Compliance Costs by Filing Methods, 2010

Method	Compliance Time (Hours)	Mean Hourly Rate (RM)	Compliance Time Costs (RM)	Compliance Money Costs (RM)	Total Compliance Costs (RM)
Value of Time Method: Mean Reported Value					
All	11.17	36.16	403.91	259.03	662.94
E-Filing	9.84	36.33	357.49	300.23	657.72
Manual Filing	13.24	35.89	475.18	195.28	670.46
Difference:					
In Hours/RM	-3.40		-117.69	104.95	-12.74
In %	-25.68		-24.77	52.52	-1.90
Value of Time Method: Median Reported Value					
All	11.17	20.00	223.40	259.03	480.99
E-Filing	9.84	20.00	196.80	300.23	497.03
Manual Filing	13.24	20.00	264.80	195.28	460.08
Difference:					
In Hours/RM	-3.40		-68.00	102.57	36.95
In %	-25.37		-25.68	52.52	8.03
Value of Time Method: National Wage Rate*					
All	11.17	25.17	281.15	259.03	540.18
E-Filing	9.84	25.17	247.67	300.23	547.90
Manual Filing	13.24	25.17	333.25	195.28	528.53
Difference:					
In Hours/RM	-3.40		-85.58	102.57	19.37
In %	-25.37		-25.68	52.52	3.67

Note: National wage rate was calculated by the author.

7.5.2 Statistical Effect

Similar to the compliance time and monetary costs, the results of the Mann-Whitney U test on total compliance costs between e-filing and manual filing, using either value of time estimated by respondents ($U = 7,097.00$, $p = ns$) or author's calculation ($U = 7,344.00$, $p = ns$), also indicated a non-significant difference. The details of the Mann-Whitney test results are presented in Appendix N.

7.6 Compliance Costs and E-Filing Usage Behaviour

A logistic regression analysis between compliance costs and e-filing usage behaviour was carried out to determine whether compliance costs or their related items had a significant effect on e-filing usage behaviour. Unfortunately, it was found that compliance costs were not a statistically significant determinant of e-filing usage behaviour. To ensure the analysis was thorough, the compliance costs items, as well as compliance costs by important demographic characteristics such as ethnicity and

employment status, were also investigated. However, the results indicated a result of non-significance for all categories tested. Therefore, the compliance costs component was not included in the determinant of the e-filing usage behaviour model.

7.7 Chapter Summary

This chapter has presented an analysis of the tax compliance costs estimation and its components and the impact of e-filing on these compliance costs and its components. The estimated average PIT compliance costs for the YA2009 was RM663 per respondent (mean reported value), which was comprised of 61 percent time costs and 39 percent money costs. The e-filing total compliance costs were estimated at RM656, which was not much different from manual filing (RM670). The e-filing compliance time costs were less than manual filing by about 25 percent. However, the e-filing money costs were higher than manual filing by about 53 percent. The offsetting effect of the two compliance costs components reduced the gap between e-filing and manual filing compliance costs.

The overall distribution of compliance time and money indicated that almost 70 percent of respondents spent eight hours or less in completing their income tax obligations and about 41 percent of respondents actually did not incur any expenditure in completing their PIT duty. More than 63 percent of e-filers spent less than six hours on this.

It was identified that *plantime* and *helptime* were two time components that produced higher compliance time under the e-filing system. This may indicate that the effect of start-up costs in the e-filing system still exists for many taxpayers. *Keptime* was found to be not affected by the e-filing system but, rather, depended on the complexity of tax affairs.

Typical characteristics of the respondents with the highest average compliance time were male, married, aged 65 and over, self-employed, of Chinese ethnicity and having low educational attainment (up to STPM). Meanwhile, typical characteristics of respondents with the lowest average compliance time were female, other marital status, aged between 55 and 64, employed or retirees, Malay ethnicity and holding a diploma or equivalent. Compliance costs were found to be regressive where a lower

annual income group incurred a higher proportion of compliance costs than the higher annual income categories. Although it was concluded that respondents with simpler tax affairs benefitted from the e-filing system, the experience of the e-filers in e-filing also played an important role. The complexity of tax affairs was almost undeniable to increase the compliance time and money spent (for example on record-keeping time, supplying information to a tax agent and tax agent's fees).

In order to answer the research question on the impact of e-filing on compliance costs and average compliance time, Mann-Whitney U tests were performed on both the e-filing and manual filing groups to ascertain the difference. The results indicated that e-filing had affected the average compliance time and monetary costs for a number of components. Comparison of ten compliance time components indicated that only *advicetime*, *helptime*, *submittime* and *plantime* were statistically significantly different between e-filing and manual filing. All the significant time components however, had higher time costs for e-filing except for *submittime*. There was also a statistically significant difference between e-filing and manual filing for IT expenditure, where the e-filing group spent more than the manual filing group. A further and more detailed comparative analysis is made in the next chapter.

Chapter 8

Discussion

8.1 Introduction

This chapter discusses two key findings of the present study: (1) the determinants of e-filing usage behaviour and (3) the effect of e-filing on compliance costs of the PIT system and the overall estimates of compliance costs. The presentation of this chapter is divided into four sections. After this introduction, results for factors affecting e-filing usage behaviour are discussed according to the thesis research questions. Results are compared with the previous findings and any differences are discussed. Included in this chapter are discussion on profile of e-filers and manual filers, the desirability of and ways to increase the take-up rate of tax e-filing. The third section presents the discussion of compliance costs concerning the effect of e-filing and international comparisons of overall estimates. Finally, the chapter ends with a summary.

8.2 Factors Affecting E-Filing Usage Behaviour

8.2.1 Comparison with Previous Malaysian Studies

The variables in the model of tax e-filing usage behaviour in the present study are compared with variables in previous studies in the area of technology acceptance. This includes the study on e-government in general and tax e-filing in particular. However, only selected studies with similar independent variables to current studies are discussed.

In terms of methodology, there are two main differences in the present study as compared to previous studies. First, the present study tested the actual usage behaviour of the tax e-filing system as being the dependent variable instead of the behavioural intention used in many previous Malaysian studies (see, for example, Lai et al., 2005; Ramayah et al., 2008; Abdul-Manaf et al., 2010; Hussein et al., 2011). The actual behaviour was tested in the present study because the author was of the opinion that intention did not necessarily result in action.

Sometimes, intentions might not lead to action because some of them are left behind and some are revised due to changes in circumstances (Ajzen, 1985, p. 11). For example, Lai et al. (2005, pp. 98-99) found a particularly strong usage intention towards the e-filing system among Malaysians, although the fact is that in 2006 (the official year e-filing was introduced), the users of e-filing numbered only about 5.4 percent.⁷² It is hoped that the examination of the actual behaviour in the present study will contribute to a better understanding about the Malaysian PIT payers behaviour and will confirm the results of previous studies.

Related to the use of statistical analysis in previous studies, studies of technology acceptance conducted in Malaysia utilised either a multiple regression analysis or a Structural Equation Modelling (SEM).⁷³ However, the present study employed a statistical method referred to as a logistic regression.⁷⁴ The reason for a logistic regression analysis for the present study lies in the nature of the dependent variable measured in the present study as being different from the one normally examined in previous studies. The dependant variable of the present study is *e-filing usage behaviour*, which is a dichotomous variable – “used” or “did not use”. Therefore, a logistic regression is more suitable for the present study. The use of a different statistical method (which is the logistic regression analysis) in this study seeks to prove that a logistic regression can also be used in predicting the relationships with a binary dependent variable (Pohlmann & Leitner, 2003, p. 103), as in the case for the e-filing usage behaviour.

The present study found that *PU* is a strong determinant of the e-filing usage behaviour. The variable is also found to be statistically significant in almost all Malaysian studies under review with the exception of Ilias et al. (2008). *PU* is found to be positively related to the e-filing usage behaviour. This suggests that e-filing is widely accepted by people who positively perceived e-filing as useful. Most of the Malaysian previous studies also found that *PEOU* is a significant determinant of tax e-filing acceptance. In the present study, original measures of *PU* and *PEOU* were

⁷² Calculated by the author using information from the IRBM's 2006 Annual Report (2007a, pp. 39 & 48).

⁷³ A multiple regression analysis can examine only a single relationship at a time although the technique allows for multiple dependent variables. In contrast, SEM can examine a series of dependence relationships simultaneously (Hair et al., 2006, p. 705-706).

⁷⁴ Refer to Section 4.6.3.3, Chapter 4 for further explanation on the logistic regression analysis.

combined by EFA. Nonetheless, it is a common situation as it is also demonstrated by Lean et al. (2009, p. 468) in the Malaysian context. This probably explains why the respondents in the present study (as well as in Lean et al., 2009) viewed *PU* and *PEOU* as being equally important.

Anxiety was found to be a significant predictor of e-filing behaviour in the present study and it is negatively correlated with the usage behaviour. People will not engage in e-filing if their anxiety level is high and vice versa. This has never been studied in a Malaysian context. However, *anxiety* is considered most similar to variables such as *perceived risk*, *insecurity* and *trust*, tested in previous Malaysian studies, for example, Lean et al. (2009), Ambali (2009) and Abdul-Manaf et al. (2010).⁷⁵ Ambali (2009, p. 258) found *perceived insecurity/risk* to be a statistically significant determinant of e-filing retention and Lean et al. (2009, p. 473) found *trust* to be a significant determinant of using an e-government service.

Nonetheless, Abdul-Manaf et al. (2010, p. 27:12) did not find *trust*, *perceived risk* or *insecurity* to be significant predictors in their studies. Hussein et al. (2011, p. 239) also did not find that *perceived risk* is a significant predictor of intention to use e-filing in Malaysia and explained that the situation is due to the mandatory setting of e-filing where good citizens have no choice except to abide the law. The tax e-filing in Malaysia is, in fact, not compulsory but rather an alternative to manual filing. It is only the filing of an income tax return annually that is a compulsory requirement for all PIT payers. The sample in Hussein et al. (2011, p. 239) showed that 93 percent of respondents rated themselves as intermediate or expert level in computer skills and about 80 percent have more than five years of internet experience. Experienced users of computer and the internet are found to have more positive attitudes (Czaja & Sharit, 1998, p. 337) which possibly explains why perceived risk is not a significant factor in Hussein et al. (2011).

The insignificant findings on *self-ability* in the present study confirmed the finding by Abdul-Manaf et al. (2010) and Suki and Ramayah (2010) who utilised a multiple regression analysis and SEM analysis respectively. The finding indicated that respondents did not perceive they were having *self-ability* problem towards the use of e-filing although some of them had never used the system. The finding is

⁷⁵ Further discussion on *anxiety*, *insecurity*, *risk* and *trust* can be found in Section 8.2.6.3, Chapter 8.

somewhat contradicted by many international studies that found *anxiety* is negatively related to *self-ability* (Stumpf et al., 1987, p. 101; Compeau & Higgins, 1995, p. 201; Compeau, Higgins, & Huff, 1999, p. 153). However, the findings in the present study may be justified by Lai et al. (2005, p. 100) who found that Malaysian taxpayers had lack of confidence in the capability of the IRBM to manage an e-filing system. Further research on the source of *anxiety* probably can provide some clarification on this matter.

Even so, there are Malaysian studies which found that *self-ability* is a statistically significant predictor (for example, Ramayah et al., 2009; Anuar & Othman, 2010). In the case of Anuar and Othman (2010), the focus was on online tax payments. Online tax payments are done through internet banking from authorised banks (for example, Public Bank) which are private banks and are well established. Therefore, the electronic payment scenario might be perceived differently from income tax filing from the IRBM.

The finding on *external influence*, which was also non-significant in the present study, suggests that people's behaviour towards e-filing in Malaysia is not influenced by other people such as friends or even family. A similar finding of non-significant *external influences*, sometimes referred to as *social influences* or *subjective norms* in other studies, is also found in a study by Lean et al. (2009, p. 471). Nonetheless, Ramayah et al. (2009, p. 280) and Anuar and Othman (2010, p. 27) found *external influence* to be a significant predictor of e-filing acceptance.

This inconsistent finding may be due to a number of reasons. First, a combination of the diverse methods of analysis and differing types of respondents might contribute to a different result being obtained even for the same e-filing system (in Malaysia). For example, in a study by Ramayah et al. (2009), the respondents comprised only from salaried individuals, whereas the current study includes both employed and self-employed respondents. Further, they utilised the technique of multiple regression, while the current study employed a logistic regression. In Anuar and Othman (2010), the method of collecting data is through an online survey where only those with email were contacted. This indicates that the respondents are knowledgeable or at least have a basic knowledge in computer and IT.

Secondly, the relative insignificance of *external influence* may be due to greater exposure of technology-based solutions in all fields of life, not only in e-government. This indicates that external or social influences are decreasing over time as compared with earlier studies. It was also found that social influences are significant only in a mandatory setting at early stages when people have less experience in technology (Venkatesh et al., 2003, pp. 451-452). Comparison of selected prior studies on e-filing, selected studies of e-government in Malaysia and the present study are summarised in Appendix B.

8.2.2 Comparison with Previous International Studies

Taiwan, India and Turkey are among the countries that have actively carried out studies on tax e-filing acceptance. Singapore, Australia and the UK also have published studies on the same topic but their focuses are slightly different from the present study. For example, a study in Australia identified factors that made Australian e-tax a success. These are more related to the tax administrator than the user of the system (for example, tax policy context, technical context, role of key constituent and effectiveness of champions) (Turner & Apelt, 2004, p. 260).

The fundamental problem of being able to understand why taxpayers behave in the way that they do remains largely unsolved or unchanged over time. As a result, more studies to identify factors that are likely to affect the PIT payers' decisions to use or not use the tax e-filing system have been carried out in the USA recently (see, for example, Carter & Bélanger, 2005; Carter, Schaupp, & Evans, 2008; Carter & Schaupp, 2009; Schaupp & Carter, 2009, 2010; Schaupp, Carter, & Hobbs, 2010; Schaupp, Carter, & McBride, 2010; Carter et al., 2011).

Statistically, most of the international studies utilised SEM or multiple regression analysis, which is similar to prior Malaysian studies discussed above. Nonetheless, there is also a study employing discriminant analysis, which is similar to logistic regression analysis. Related to this, most of the studies focused on the behavioural intention, except a study by Gallant et al. (2007) who employed discriminant analysis and focused on actual behaviour. The discriminant analysis is quite similar to a logistic regression in that the dependent variable tested should be in a categorical

form.⁷⁶

The findings on *PU* in the majority of international studies are consistent with the present study. A study by Ozgen and Turan (2007) in Turkey and a series of studies in Taiwan (Wang, 2002; Chang, Li, Hung, & Hwang, 2005; Wu & Chen, 2005; Fu et al., 2006; Hung et al., 2006) found that *PU* is a statistically significant factor in the acceptance of tax e-filing system. *Perceived usefulness* is also found to be statistically significant in USA studies (Schaupp & Carter, 2009; Schaupp, Carter, & McBride, 2010; Carter et al., 2011) as well as in India (Ozgen & Turan, 2007; Sharma et al., 2011). The finding is consistent regardless of the statistical methods employed (for example SEM or multiple regression or logistic regression analysis), the dependent variable (*intention* or *actual behaviour*) tested or respondents covered (students, professionals or citizens). Therefore, it can be concluded that *PU* is undeniably a significant variable in e-filing behaviour.

In the context of international studies, *anxiety* is not a popular variable tested in the models of e-filing acceptance. The finding on *anxiety* in the present study confirms the finding by Compeau and Higgins (1995) who found that *anxiety* was a significant determinant for computer usage behaviour. *Anxiety* was adopted by Venkatesh et al. (2003) to formulate the UTAUT model,⁷⁷ but it was not found to be significant and therefore was removed from the UTAUT model. This is a possible reason why most of the previous studies, either in Malaysia or internationally, did not include *anxiety* in their models. However, based on the view that taxpayers' behaviours are different and mostly influenced by the tax administration and citizens' attitudes toward government in different cultures (or jurisdictions) (see, for example, Alm & Torgler, 2006; Torgler & Schneider, 2007), the present study warranted examining this variable.

Most tax e-filing acceptance studies, especially from Taiwan (Wu & Chen, 2005; Fu et al., 2006; Hung et al., 2006) and the USA (Schaupp & Carter, 2009, 2010; Schaupp, Carter, & Hobbs, 2010; Carter et al., 2011) include variables such as *trust*, *perceived risk* or *insecurity*. Since the variables have some similarities and

⁷⁶ The difference between discriminant analysis and logistic regression is discussed in Section 4.6.3.3, Chapter 4.

⁷⁷ Refer to Section 2.5.1, Chapter 2 for further discussion.

connection in their definitions with *anxiety*,⁷⁸ the present study's finding on *anxiety* is deemed to support the findings on *perceived risk* and *insecurity* in prior international studies, which have a negative relationship with tax e-filing acceptance.

Findings on *self-ability* in previous international studies are mixed. Some of the studies indicate the variable as significant and some do not. The present study, however, indicates a non-significant finding on *self-ability* towards the e-filing usage behaviour. The finding in the present study supports those findings by Chu and Wu (2005) and Fu et al. (2006) in Taiwan and Ozgen and Turan (2007) in Turkey. Meanwhile, *external influence* in the present study was found to be a non-significant variable, similar to the finding in Wu and Chu (2005) in Taiwan and Sharma et al. (2011) in India. However, most of the other prior international studies found *external influences* or *social influences* or *subjective norms* to be significant variables in e-filing acceptance. According to Wu and Chen (2005, p. 797) *external influences* will occur in a mandatory setting rather than in a voluntary context. The compliance effect on technology acceptance will function whenever an individual perceives that the *external influences* have the ability to reward behaviour or punish non-behaviour (Venkatesh & Davis, 2000, p. 188).

The inconsistent findings in prior international studies on *self-ability* and *external influences* might be due to many factors. Internationally, the factors may include the demographic variables of the respondents studied (for example, well-educated persons or laypersons), the country specific items (for example, government support and internet connection), the questionnaire design for measurement of variables, the statistical method employed, and the age of the e-filing system (exposure to the system) as discussed in section 8.2.1 above.

In addition, the nature of the e-filing system in Malaysia as compared to other countries may be a contributing factor to the inconsistent results. For example, the e-filing system in Malaysia is simpler than that of Australia. The Malaysian e-filing system (as for YA2011) only has eight pages or sections, comprising: taxpayer's details page, spouse details page, statutory and total income page, income for preceding years not declared page, deduction claim page, rebate claim/tax deduction/tax relief page, tax summary page and finally declaration and signing page

⁷⁸ Refer to Section 8.2.6.3.

to read and complete; while the Australian e-tax has 10 folders to review, read and complete with each folder containing more than one page. The folders consist of specifically: “starts”, “personal details”, “pre-filing”, “income”, “deductions”, “tax offsets”, “other items”, “income test”, “Medicare items”, and “lodgement” folders.⁷⁹ The simpler e-filing system in Malaysia may reflect simpler tax law as compared to Australian Income Tax Law.

Although the means analysis using *t*-test indicated that means for both *self-ability* and *external influence* were statistically significantly different between e-filers and manual filers,⁸⁰ the impact of *self-ability* and *external influences* to the current model of e-filing usage behaviour is not as strong as *PU* and *anxiety*. A summary of international studies on e-filing acceptance is presented in Appendix A.

8.2.3 Level of Tax E-Filing Acceptance among Malaysians

The problem of unsatisfactory tax e-filing take-up rates has been recognised internationally. In the USA for example, the IRS established a goal to achieve at least 80 percent of all returns being filed electronically by the year 2007 (Electronic Tax Administration and Advisory Committee, 1999, p. 1). However, up to 2011, the e-filing rate is still lagging behind the desired rate. For 2010, it was reported that the total e-filing rate was about 60 percent and it is projected that the rate will increase to 66 percent for 2011 (Electronic Tax Administration and Advisory Committee, 2011, p. 5). The e-filing rate for individual taxpayers, although still below the targeted rate, was the highest among other types of returns. It is reported that the e-filing rate for individual taxpayer return forms achieved a level of 72 percent for 2010 (Electronic Tax Administration and Advisory Committee, 2011, p. 3). It is necessary to examine the current level of e-filing acceptance in order to evaluate whether the system is worth the investment or not. If not, some measures to increase the take-up rate might be necessary.

Currently in Malaysia, there is no specific target in the form of a percentage of total taxpayers being attempted by the IRBM in a similar way to the USA. Nonetheless,

⁷⁹ A review of the Australian e-tax system for 2011, which was downloaded from <http://www.ato.gov.au/>, the ATO website in 2011 and the e-filing system in Malaysia from <https://spsd.hasil.gov.my/PKI/>, the IRBM website, by author.

⁸⁰ Refer to Table 6.8 in Section 6.3.3, Chapter 6.

the target to achieve one million users in the third year of implementation was achieved in 2008 (Inland Revenue Board of Malaysia, 2009a, p. 38). In the 2009 annual report published by the IRBM (2010a, p. 46), it was reported that the users of e-filing among personal taxpayers was about 1.46 million. In terms of percentage, this number only represented 30.5 percent of the total PIT payers.

To answer a minor research question on the current level of e-filing acceptance, the goal of 80 percent as in the USA can be set as a benchmark. In 2006, the users of the tax e-filing system in Malaysia were reported to be only about five percent of total PIT payers. The number increased to almost 20 percent in 2007, 25 percent in 2008 and about 31 percent in 2009. The level of e-filing acceptance in 2009 indicated that the acceptance of e-filing among PIT payers in Malaysia was still low and at an unsatisfactory level. Details on filings by PIT payers for 2006 to 2009 are presented in Table 8.1. Interestingly, as shown in Table 8.1, the non-compliance rates among PIT payers are also increasing steadily. This phenomenon triggers another issue about the capability of e-filing to facilitate voluntary compliance.⁸¹

Table 8.1: E-Filing and Manual filing for Personal Income Taxpayers in Malaysia, 2006 to 2009

	2006		2007		2008		2009	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
E-filing	186,271	5.3	873,095	19.6	1,168,251	25.5	1,460,209	30.5
Manual filing	2,409,554	68.2	1,399,789	31.4	1,179,453	25.7	-	-
Total return filed	2,595,825	73.5	2,272,884	51.1	2,347,704	51.2	-	-
Non-compliance	935,625	26.5	2,178,559	48.9	2,241,412	48.8	-	-
Total PIT payers	3,531,450	100.0	4,451,443	100.0	4,589,116	100.0	4,785,452	100.0

Source: The IRBM's annual reports, 2006 to 2009 and unpublished data provided by the IRBM through personal communication (25 March 2011).

It is argued that the take-up rate of e-government services heavily depends on broadband internet connectivity (United Nations, 2012, p. 107).⁸² In Malaysia, two types of internet connectivity are available, namely: dial-up and broadband technologies. For the year 2010, internet penetration among Malaysians was reported at 61 percent, which has increased from 21 percent for the year 2000

⁸¹ This issue is proposed by (Ibrahim & Pope, 2011, p. 88) to be dealt by the introduction of a pre-filled return system, and discussed later in Section 8.2.6.4.

⁸² Broadband is defined as a transmission capacity that is faster than the primary rate Integrated Services Digital Network (ISDN) at 1.5 or 2.0 Megabits per second (Mbps) (International Telecommunication Union, 2003). In simpler terms, broadband is a faster internet connection than dial-up technologies.

(International Telecommunication Union, 2011).⁸³ The majority of users (89 percent) accessed the internet through broadband as compared to dial-up connection (Malaysian Communications and Multimedia Commission, 2010, p. 15). This indicates that the speed of internet connectivity is crucial to users. However, the higher speed of broadband comes with extra cost. A report by the Malaysian Communications and Multimedia Commission (2010) shows that, on average, Malaysians are only willing to pay about RM42 (or about AUD\$14.39) per month for a broadband service, whereas the minimum cost is RM55 (or about AUD\$18.84) (Malaysian Communications and Multimedia Commission, 2010).

Another factor to consider is the accessibility of the internet in rural or remote areas. Statistics show that the percentage of rural internet users was between 12 and 18 percent for 2005 to 2008 (Malaysian Communications and Multimedia Commission, 2010) with only a rate of about seven percent for internet subscriptions by households in rural areas (Department of Statistics Malaysia, 2012, p. 50). The availability of the internet in remote areas may not be very significant for the income tax paying population. As PIT payers should receive an annual income of more than RM24,800 (or RM2,069 per month) before having to pay tax,⁸⁴ it is more likely that the majority of them live in cities or towns where wages or salaries are higher and basic amenities (which include telephone lines and network coverage) are available. However, easier internet access in remote areas will increase the convenience of e-filing. In short, three aspects are important given current conditions and these include: higher speed, lower price and good accessibility.

8.2.4 Characteristics of E-Filers and Manual Filers

8.2.4.1 Overall Comparison with Previous Studies

Understanding the characteristics or demographic background of a group of people is important for decision-making. In health studies, for example, demographic information is used to evaluate outcomes of health care treatments and to advise resource allocation decisions (Dolan & Roberts, 2002, p. 919). Likewise,

⁸³ Refer to Appendix Q for details.

⁸⁴ This figure is calculated based on individual tax rates for 2009 and 2010 after taking into account the personal relief figure of RM9,000 and personal tax rebate of RM350.

understanding the characteristics of users and non-users of e-filing can help the government to tackle the specific groups effectively, rather than implementing a general strategy in promoting the e-filing system.

Overall, the present study reveals that the users of the e-filing system was predominantly comprised of those who were male, aged below 45, employed, Malay ethnicity and having a general education attainment of diploma level or higher. In terms of location, the number of e-filers outperformed the manual filers in all locations, but people who lived in the Klang Valley area (urban areas) were the highest group of e-filing users. The characteristics of those who refused to use the e-filing system were mostly opposite to the characteristics of those who preferred the system.

The manual users were primarily those aged between 45 and 64, self-employed, Chinese ethnicity and had a low education attainment. Although the users of e-filing outnumbered those manual filing in all locations, the eastern areas (which comprise the states of Kelantan, Terengganu and Pahang) held the highest percentage of manual filers (45 percent of total respondents from that area). The main characteristics of manual and e-filing users from the present study are summarised in Table 8.2. Cross-tabulations between three main characteristics, that is, ethnicity, education and employment status, to support the characteristics of manual filers are presented in Appendix P.

Table 8.2: Main Characteristics of E-Filers and Manual Filers, 2010

Demographic Variables	E-Filing Users	Manual Filing Users
Gender	Male	Female
Age	Below 45	45 to 64
Employment status	Employed	Self-employed
Ethnicity	Malays	Chinese
Education level	Diploma or higher	Up to STPM
Location	Klang Valley	Eastern part

The respondents' profiles in the present study's findings are similar to a previous study on technology readiness by Rockbridge Associates Inc. (2005, pp. 15-16), which found that the characteristics of people who have high techno-readiness are young, highly educated people, male and live in closed-in suburbs. The similarity suggests that the users of the e-filing system in this study probably possessed more techno-readiness qualities than the manual users and therefore the policy-maker

should focus on the opposite characteristics in developing any strategy to increase the take-up rate of e-filing.

However, this result contradicts the finding by Ramayah et al. (2008) who found Chinese ethnicity as being a dominant feature of the e-filing user. Reasons for the difference may be due to the timing of data collection and the sample of the study employed for both studies. Ramayah et al. conducted their study in 2006 when e-filing was just commencing for personal taxpayers⁸⁵ while the present study was conducted after five years of operation, in 2010. Moreover, the sample of the Ramayah et al.'s study consisted of only 100 taxpayers in the Penang area, a small state out of fourteen states in Malaysia. It is well known that the majority of the population in Penang, especially in Penang Island, is Chinese (Department of Statistics Malaysia, 2011a, p. 3). Therefore, it is not surprising that the finding in Ramayah et al. indicated the Chinese as the dominant ethnicity that engaged e-filing during that time. The present study, on the other hand, covered a wide range of the geographical area in Malaysia, including all states and was comprised of 242 usable responses, which doubled the number in the Ramayah et al. sample, and the respondents were randomly selected by the IRBM from its PIT payer database.

8.2.4.2 Gender

Technology has been defined as 'gendered' in the sense that it is used in predominantly male activities, especially in the labour force (Wajcman, 2001, p. 5976). The male gender has been discovered by many studies as being the dominant feature in technology, computing and the internet (see, for example, Durndell, Cameron, Knox, Stocks, & Haag, 1997; Mayer-Smith, Pedretti, & Woodrow, 2000; Schumacher & Morahan-Martin, 2001; Durndell & Haag, 2002; Volman, van Eck, Heemskerk, & Kuiper, 2005; Vekiri & Chronaki, 2008; Sáinz & López-Sáez, 2010). In contrast, Durndell and Haag (2002, p. 529) found females perform less internet usage, have fewer positive attitudes towards the internet, greater computer anxiety and lower computer self-efficacy than males, which explains their behaviour towards technology.

⁸⁵ Officially, the e-filing system was opened with a free digital certificate in February 2006 (Inland Revenue Board of Malaysia, 2008, p. 40; 2009a, p. 38).

8.2.4.3 Age

It is common to believe that aged people hold more negative attitudes towards technology than younger people. The result of the present study also indicated that the users of manual filing were mainly older people, aged between 45 and 64. A result from the 2007 National Technology Readiness Survey in the USA indicated that age is a significant factor behind differing beliefs about online content where older people prefer a physical copy of multimedia content (Rockbridge Associates Inc., 2008, p. 18). The older people normally have less perception of the usefulness of computers and therefore, less interest in using them (Marquie, Thon, & Baracat, 1994, p. 139). It has also been found that older people are less confident in their ability to use computer systems, which resulted in the high level of computer anxiety (Czaja & Sharit, 1998, p. 330). This opinion is also supported by (Chung, Park, Wang, Fulk, & McLaughlin, 2010, p. 1680) who found that age was negatively related with self-efficacy and the use of IT in general. This is probably because older people have a lower level of IT knowledge (Maldifassi & Canessa, 2009, p. 278) since they were not born in the computer generation.

8.2.4.4 Educational Attainment

Education is found to have a positive relationship towards technology (Rockbridge Associates Inc., 2005, p. 15). For example, a study by Goolsbee (2004, p. 129) in the USA found that those who used tax software were those who had a higher level of education background than the non-users. The finding in the present study found that low educational attainment was a major characteristic of manual filers and this supports the previous findings. Similar to tax knowledge being found to be a determinant of tax compliance behaviour in many studies in Malaysia (see, for example, Hanefah, 1996; Loo, 2006a; Palil, 2010), the general educational attainment is also noteworthy in ascertaining e-filing compliance behaviour. This is probably because persons with higher educational attainment had experience with computer and internet during their study periods which increased their perception of the usefulness of the e-filing system.

8.2.4.5 Employment Status

In relation to employment status, it was found that the majority of self-employed respondents preferred manual filing. First, as their nature of income tax was complex,⁸⁶ self-employed respondents were comfortable with the manual filing process. The e-filing system may add an unnecessary burden due to the learning process involved and the results are unpredictable meaning that mistakes could occur. Therefore, to be safe, they preferred the traditional way of filing. Second, due to their complex tax affairs, many of them engaged a tax professional. In a study by Lai et al. (2005, p. 102) it is found that many of the tax professionals have concerns regarding the security of the tax e-filing system in Malaysia. The perception of a tax professional will definitely influence the decision of their clients whether to use or not to use the e-filing system. These two situations create an extreme uncertainty for self-employed respondents and extreme uncertainty creates unbearable anxiety (Hofstede, 1984, p. 154).

8.2.4.6 Ethnicity Group

Ethnicity background is an important characteristic in determining the acceptance of tax e-filing in Malaysia. In many of the analyses undertaken in Chapters 6 and 7, the different perceptions especially between Chinese and Malays were significant. For example, as shown in Chapter 6, Chinese and Malays had statistically significantly different perceptions towards the determinants of the e-filing usage behaviour.⁸⁷ In Chapter 7, analysis of time spent by ethnicity indicated that the means of compliance time spent by Malays and Indians were about 8 hours, while Chinese spent almost double the amount of time compared to Malays and Indians.

Ethnicity differences in computer and technology have been mostly studied in the USA, where the population is multi-racial (see, for example, Martinez & Mead, 1988; Hoffman & Novak, 1998; Calvert, Rideout, Woolard, Barr, & Strouse, 2005). Findings from the studies indicate that there are differences between ethnicities in

⁸⁶ Many compliance costs studies found that the estimated average compliance costs for self-employed persons are much higher than for non-self-employed, indicating the complexity of self-employed tax matters (Slemrod & Sorum, 1984; Pope et al., 1990; Blumenthal & Slemrod, 1992; Guyton et al., 2003; Vaillancourt, 2010).

⁸⁷ Determinants of e-filing usage behaviour were *perceived usefulness, self-ability, anxiety and external influence*.

computer and internet usage. Malaysia is also a multi-racial country with Malays, Chinese and Indians being the three main ethnic groups. Each ethnicity in Malaysia represents its own culture. Besides ethnicity, culture is also a factor that is usually studied by researchers in technology acceptance (see, for example, Jackson et al., 2008) as well as in the taxation field (see, for example, Alm & Torgler, 2006).

Culture is defined by Hofstede (1984, p. 51) as “the collective programming of the mind which distinguishes the members of one category of people from another”. Culture is also defined as “the shared patterns of behaviours and interactions, cognitive constructs, and affective understanding that are learned through a process of socialization. These shared patterns identify members of a culture group while also distinguishing those of another group” (Center for Advanced Research on Language Acquisition, 2009). Different cultural attitudes between Malays, Chinese and Indians result in different perceptions towards the tax e-filing system in Malaysia and lead to their respective behaviour. A possible reason for the majority of Chinese in Malaysia not using the tax e-filing system is because they have somewhat negative perceptions towards the tax e-filing system in Malaysia.

Educational attainment, employment status and ethnicity results in the present study suggest an inter-relationship between them. It was found that a majority of the self-employed were from Chinese ethnicity and most of them had low educational attainment. They were the largest group of manual filers. Cross-tabulations between three main characteristics, which are ethnicity, education and employment status to support the characteristics of manual filers, are presented in Appendix O. It was identified that 60 percent of self-employed respondents were Chinese. From 43 percent of Chinese having lowest educational attainment, 68 percent are self-employed. It was also revealed from the present study that 66 percent of self-employed respondents were in the lowest educational attainment group and 64 percent of them are Chinese.

However, Czaja and Sharit (1998, p. 337) found that direct experience with computers can improve negative attitudes towards computers and technology regardless of the characteristics of respondents. This means that with increased information, training and involvement of users in computer and technological tools, fears and feeling of anxiety can be reduced (Marquie et al., 1994, pp. 139-140), even

among the self-employed with low educational attainment.

8.2.5 Desirability of Increasing the Take-Up Rate of E-Filing

Given that the investment in the e-filing system by government is significant, it is vital to obtain as many benefits from the system as possible. It is reported that about RM34.23 million (about AUD11.72 million)⁸⁸ was invested in e-filing projects in Malaysia for the period from 3 January 2006 to 2 January 2011 (Inland Revenue Board of Malaysia, 2009b, pp. 15-16). At the current stage, only some information related to external costs is available for determining the cost saving for tax administration from the e-filing system. Reduction in activities to process manual returns and the efficiency of administering e-filing returns are difficult to quantify unless sufficient information is provided by the IRBM. A decrease in the number of jobs by officials is difficult to be converted to monetary value because the IRBM does not cut its staff; rather, the staff is re-allocated to other tasks such as auditing. Among the cost-saving items that are identifiable (from the flow chart provided by the IRBM (2007b) are:

1. Printing and postage of hard copies of return forms;
2. Scanning the return forms returned for storage purposes (outsourced);
3. Temporary staff hired during the peak season.

The IRBM estimated that printing and postage costs were RM3.73 per return in 2009 (Inland Revenue Board of Malaysia, 2009b, p. 19).⁸⁹ Using this data, the saving from printing and postage is estimated to be around RM5,446,580 (RM3.73 x 1,460,209) for 2009. It is quite a large saving, but it only accounts for about 16 percent of total investment costs.⁹⁰ If all the PIT payers for YA2009 (about 4.8 million) used the e-filing system, a saving of almost RM18 million or about 52 percent of investment costs will be covered.⁹¹ This means that investment costs can be fully covered within only two years.

However, it is very difficult, if not impossible, to achieve 100 percent e-filing usage.

⁸⁸ Exchange rate for RM1 = AUD0.3425 (2010).

⁸⁹ The costs might be higher due to the stamp rate being increased starting from 1 July 2010.

⁹⁰ RM5,446,580/34,226,918*100 = 16 percent.

⁹¹ 4.8 million x 3.73=RM17.904million.

For the investment costs to be fully covered, at least a large number of users of the system is required. Based on the estimation of cost-saving at the IRBM at the current stage, and if the number of users of e-filing is 100 percent, it is recommended that the take-up rate of e-filing be increased. It is suggested that the IRBM identify the cost items (for example, start-up costs and recurring or maintenance costs) for the e-filing system and the related cost saving items in order to evaluate the success of the e-filing system more accurately.⁹² The area that should be given priority is the cost of staff.

In the evaluation of compliance costs for e-filing users and manual filing users, it has been identified that e-filing can significantly reduce the submission time of e-filing returns compared with manual returns. The estimated average compliance time indicates that the compliance time for e-filers (mean = 9.84 hours) is less than that of the manual filers (mean = 13.24 hours). Given this estimation of the compliance time, it can be concluded that the e-filing take-up rate is worth increasing. Therefore, the minor research question of whether it is desirable to increase the take-up rate of e-filing has thus been answered. The following section discusses ways to increase the e-filing take-up rate based on the findings of the present study.

8.2.6 Ways to Increase the Take-Up Rate of E-Filing

8.2.6.1 Profile of Manual Filers

The profile of manual filers identified from the present study could help the IRBM in formulating a specific method to tackle each group. For example, Chinese people may need a Chinese person to help them understand the e-filing, since some Chinese in Malaysia may not understand the Malay language. Meanwhile, people in the age group 45 to 64 may be difficult to change as they are more familiar with manual filing. According to Maslow's safety needs, it is common for people to go for something that they are familiar with rather than unfamiliar things because they seek safety and stability (Maslow, 1954, p. 19). Therefore, advertising is vital to build a positive image in the minds of the target audience; and education and support are required at a different level (Parasuraman & Colby, 2001, pp. 6-7) to the following

⁹² The staff costs saving from the use of the e-filing system should be identified and quantified. For example, the increase of other performance measures (for example, tax audit case) should be measured as an impact from the e-filing system so that the effect of e-filing will be more transparent.

groups, who are found to be the majority of the manual filers from the present study:

1. Female;
2. Aged between 45 and 64;
3. Self-employed;
4. Chinese;
5. Low education attainment (STPM or below);
6. Lived a in rural area (eastern part of Peninsular Malaysia).

8.2.6.2 Role of Perceived Usefulness

Parasuraman and Colby (2001, pp. 5-6) suggest that when a technological product or service is introduced to replace a more human element, customer beliefs are paramount. The findings from the present study suggest that the taxpayer's perception towards usefulness of e-filing is crucial. The *t*-test between e-filers and manual filers indicated that their perceptions were significantly different.⁹³ The result indicated that people who resisted using the e-filing system had a lower perception towards *PU* than those who engaged in e-filing.

In the present study, one of the measurements for *PU* was to ask respondents to indicate whether e-filing enables a taxpayer to accomplish the filing more quickly (*PU1-Quick*). Although mean analysis indicated that e-filers agreed with that statement (mean = 4.43),⁹⁴ examination of the overall compliance time results showed that, statistically, there was no significant difference between time spent under e-filing or manual filing.⁹⁵ This indicated that the e-filing system did not really save time. However, analysis by filing activities (or compliance time items) indicated some statistically significant effect of e-filing on certain compliance time items such as *submittime*.⁹⁶ In relation to *PU*, Lai et al. (2005, p. 101) suggest that a speedy tax refund is a motivation to e-filing.

8.2.6.3 Role of Anxiety

Apart from *PU*, which is the “contributor” to e-filing, *anxiety* is the “inhibitor” that suppresses the acceptance of e-filing (Parasuraman & Colby, 2001, pp. 33-34).

⁹³ Refer to Table 6.8 in Section 6.3.3, Chapter 6,

⁹⁴ Refer to Table 6.1 in Section 6.2.2.2, Chapter 6.

⁹⁵ Refer to Section 7.3.9, Chapter 7 for further results.

⁹⁶ Refer to Table 7.26 in Section 7.3.9, Chapter 7 and Appendix O for detailed results.

Therefore, *anxiety* should be combated to increase the e-filing take-up rate. Although *anxiety* was not a popular variable tested for e-filing adoption (never having been tested before in Malaysian studies), it is most similar to variables such as *trust*, *perceived risk* and *insecurity* tested in previous studies. The definitions of *anxiety*, *insecurity*, *risk* and *trust* are presented in Table 8.3 to show the link between them.

Table 8.3: Anxiety, Insecurity, Risk and Trust

Item	Definition
<i>Anxiety</i>	A feeling of worry, nervousness, or unease about something with an uncertain outcome (Oxford University Press, 2011).
<i>Insecurity</i>	The uncertainty or anxiety about oneself; lack of confidence; or the state of being open to danger or threat; lack of protection (Oxford University Press, 2011).
<i>Risk</i>	A situation involving exposure to danger (Oxford University Press, 2011).
<i>Perceived risk</i>	The citizen's belief that he will incur a loss while pursuing a given outcome.
<i>Trust</i>	Firm belief in the reliability, truth, or ability of someone or something (Oxford University Press, 2011).
<i>To trust</i>	To take risks and leave oneself vulnerable to the actions of those one trust (Tan & Thoen, 2000, p. 62).

According to the definitions above, it can be concluded that *anxiety* towards e-filing has a relationship with the feelings of *insecurity* and *risk* perception towards the system, and *risk* is related to *trust* because *trust* is necessary in a risky situation (Tan & Thoen, 2000, p. 62). In relation to the present study, we can conclude that those who resist have a feeling of *anxiety* because they feel insecure or risky using the e-filing and they did not trust the system or the system administrator – the IRBM. It is supported by a study in the USA which found that *trust* is correlated negatively to *perceived risk* and *perceived risk* is negatively affected by the intention to e-file (Schaupp, Carter, & McBride, 2010, pp. 640-41). Maslow's (1954, pp. 18-19) safety needs theory also suggests that safety should include security and freedom of fear, anxiety, and chaos, otherwise, it is common for people to go for something that they are familiar with. Trust is needed to deal with *anxiety*.

Anxiety is said to be affected by *self-ability* negatively (Compeau & Higgins, 1995, pp. 203 & 207). The individuals with high *self-ability* experienced less *anxiety* but people with high *anxiety* will perceive low *self-ability*. As discussed in Section 7.2.3, age is a factor that affects the *self-ability* (Rockbridge Associates Inc., 2008, p. 18). Older age was discovered to have a negative relationship with *self-ability* and the use of IT in general (Chung et al., 2010, p. 1680). The key reason found in previous

studies as to why older people were less likely to use new technology was due to their high level of computer *anxiety* (Czaja & Sharit, 1998, p. 330). As a result, it can be concluded that the relationship between *self-ability* and *anxiety* is most relevant for aged people.

The discussion above identified *trust* and *self-ability* as being the main causes or effects of *anxiety*. It is suggested that the IRBM should give prior attention to the causes of *anxiety* in order to decrease the *anxiety* level of PIT payers towards the e-filing system in Malaysia. Another suggestion includes four principles in ensuring successful technology by Parasuraman and Colby (2001, pp. 4-8) to be noted by the IRBM as follows:

1. *Technology adoption is a distinct process.* Therefore, taxpayers' behaviour and beliefs should first be understood by the IRBM.
2. *Technology innovations require different marketing strategies.* In taxation, the information and ways of promoting the e-filing system should be specific for different classes of taxpayers.
3. *Taxpayers' satisfaction must be ensured.* Education and support should be provided to different levels of customers (taxpayers).
4. *Technology markets are governed by a law of critical mass.* This means that e-filing should be relevant to all taxpayers and accepted by the majority of taxpayers to achieve economy of scale status, given a massive amount of investment has been made for this system by the Malaysian government.

It is concluded that the minor research question concerning ways to improve the take-up rate of e-filing system has been addressed. The ways to improve the take-up rate of e-filing discussed in this chapter include using the manual filing profile, the role of *PU* and *anxiety*, and other suggestions by Parasuraman and Colby (2001). The next section introduces the pre-filled return system as part of the e-filing system, which may increase the use of e-filing.

8.2.6.4 Role of Pre-Filing

Goolsbee (2004, p. 138) found in his study that the users of tax software (in the case

of Malaysia, include the e-filing system) are those who are technology-savvy.⁹⁷ People do not use tax software or e-filing to simplify their tax complexity, but people use these tax technologies because they are experienced users of computers and the internet. They have had a long period of access to the internet, they have purchased things online and they do their financial transactions through the internet. People who are not technology-savvy or have less internet experience may feel uncomfortable and may be reluctant to use this system because they feel they have to spend time to learn. One way to help this type of taxpayer (those who are not technology-savvy) to get involved in technology is through the introduction of a pre-filing system, where the tax authority helps the taxpayers to prepare their income tax return.

The system uses information held by the tax authority and third parties such as an employer to pre-populate income tax returns. The system has been implemented successfully in many Nordic countries such as Denmark and Sweden since the late 1980s and 1990s (Organisation for Economic Co-operation and Economic Development, 2006). The system has also been implemented in Australia as part of the tax e-filing system with many income and expenses information being populated. An analysis undertaken by Ibrahim and Pope (2011) indicates that a fully pre-filled return system is not suitable to be implemented in Malaysia with the current conditions. This is because two important critical success factors suggested by the OECD, namely the comprehensive systems of third party reporting and compatible legislative framework, are not as yet fully developed. However, a partially pre-filled returns system just like the Australian pre-filing system may be one of the best models that suits Malaysia.⁹⁸ In Australia, the objective of a pre-filing system is to make the completion of online tax filing easier, faster and more personalised (Evans & Tran-Nam, 2011, p. 8). By combining the pre-filing system with the e-filing system, e-filing users may increase as the pre-filing system should reduce e-filing time.

⁹⁷ Knowledgeable and experienced users of computer and the internet.

⁹⁸ Further discussion on the Australian pre-filled return system can be found in a study by Evans and Tran-Nam (2011).

8.3 Tax Compliance Costs

8.3.1 Comparison between E-Filing and Manual Filing Costs

8.3.1.1 Comparison by Time Spent

The analysis of average time spent by e-filers and manual filers indicated that the e-filers spent about 3.4 hours (35 percent) less than the manual filers' time. Although statistically the difference was not significant, this represented a saving of about 26 percent from a manual filer's time. The effect of e-filing time saving will be more obvious if it is grossed up for the whole PIT payer population (that is 4.8 million for YA2009). The wasted time could be allocated to other activities.

In terms of compliance time components, only three had statistically significant effects due to the e-filing system for all categories of taxpayers. They were: time to get advice (*advicetime*), free helper's time (*helptime*) and time to lodge or submit the e-file (*submittime*). The time for completing the return (*completetime*), which is expected to be less under the e-filing system, was only found to be significantly different among the lowest educational attainment group. The findings suggest that:

1. E-filing needed extra time for getting advice compared with manual filing;
2. E-filing needed more time from free helpers compared with manual filing;
3. E-filing could not help reduce the prime time-spent activities such as time for record-keeping (*keepertime*) and supplying information to a tax professional (*supplytime*);
4. Only time to lodge an e-file (*submittime*) was the best time saving method provided by the e-filing system;
5. There could be a gap of complexity within the lowest educational attainment group. E-filers' time was less than manual filers' time for this group, which indicates that the majority of e-filers had simpler tax affairs.⁹⁹

The high *advicetime* and *helptime* required by e-filers is probably due to the age of the system itself. Since it was launched in February 2006, it had only been implemented for four years in duration in the year the data collection for this study

⁹⁹ Complexity of tax affairs is deduced by reference to the type of employment and the use of a tax professional in this regard. Self-employed people and those who use a tax professional are considered as having more complex tax affairs and vice versa.

was carried out. At this early stage, advice and help are necessary, especially by considering taxpayers' characteristics such as age, level of education and employment status (which represent the complexity of tax affairs). Another possible reason may be due to the experience of the e-filers. It is found that those who were new to the e-filing system spent more time than those who already have much experience doing e-filing.¹⁰⁰ It is hoped that this effect is temporary and the time spent for advice and by free helpers will be reduced through experience.

The last two findings above suggest that e-filing is only a tool to facilitate the filing process. It is not meant to reduce the whole burden of annual filing for PIT payers. The *keep time* and *supply time* may possibly be reduced by changes in the tax law requirements. Even the latest technology (for example, a pre-filled return system) could not reduce the record-keeping burden as long as it is required by law. This is supported by Klun (2009, p. 229), who states that the compliance costs reduction in Slovenia in 2008 was not solely due to a fully pre-filled return system being implemented by the government, as many reforms to tax law had been introduced prior to implementation of the pre-filing system. However, her findings also indicated that e-filing did save taxpayers time and therefore is a convenient way to file a tax return as compared to manual filing.

Comparison of time spent by respondent characteristics provides an insight into who benefited from e-filing or otherwise. From the statistical results on compliance time, it was found that the overall time spent between e-filers and manual filers differed significantly by four characteristics: Indians, low educational attainment group, low annual income group, and low tax liability group.¹⁰¹ It is difficult to link such characteristics as to why their e-filing time is less than that of their counterparts. However, a possible explanation could be that those who used the e-filing system had less complicated tax affairs than those who used the manual system, which would reduce their e-filing time significantly compared with manual time. For example, the majority of those who used e-filing in the lowest annual income group were possibly salaried respondents, while those who used the manual filing in the same category, were self-employed respondents. Nonetheless, these were the groups that showed statistically significant differences between e-filing and manual filing

¹⁰⁰ Refer to Figure 7.2 in Section 7.3.1, Chapter 7.

¹⁰¹ Refer to Section 7.3.9, Chapter 7 and Appendix O.

time spent. Details of the average time spent for the significant characteristics by filing methods are shown in Table 8.4.

Table 8.4: Comparison of Average Time Spent by Significant Characteristics

Characteristic	E-Filing (hours)	Manual Filing (hours)	Difference (%)
Ethnicity: Indian	4.61	10.64	-56.67
Educational attainment: Up to STPM	7.99	16.46	-51.46
Annual income: Less than RM36,000	6.86	15.48	-55.68
Tax liability: Less than RM1,000	11.05	13.13	-15.84

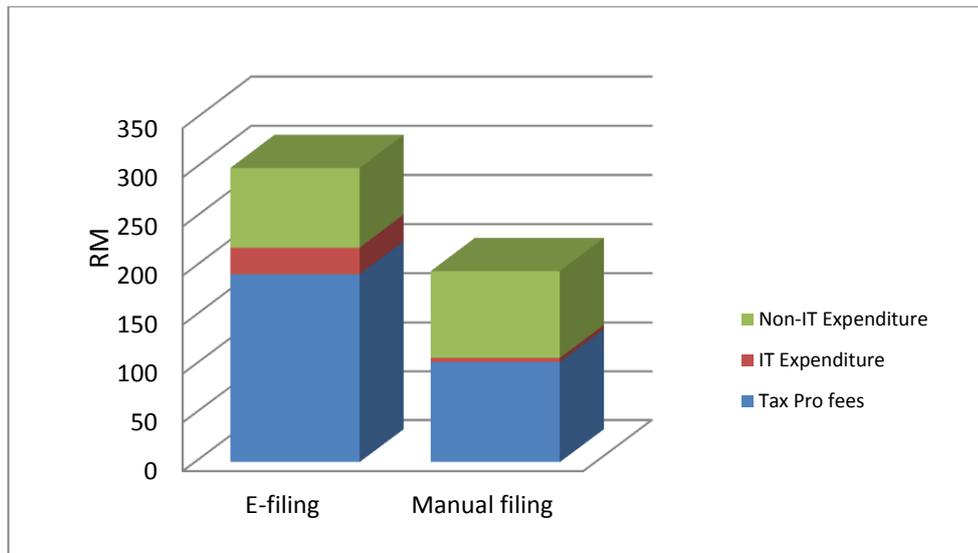
8.3.1.2 Comparison by Monetary Costs

The total monetary costs for e-filing and manual filing were not statistically significantly different. This indicated that overall, monetary costs for both e-filers and manual filers were almost the same. However, the proportion of monetary items for e-filers and manual filers showed a difference.¹⁰² The proportion of professional fees for e-filing was higher than manual filing by about 89 percent. IT expenditure was also higher for e-filing as compared to manual filing by more than five times the manual filing costs. Only the proportion of non-IT expenditure for e-filing was smaller than for manual filing by about eight percent. In total, monetary costs for e-filing were higher than manual filing by more than 50 percent.

The high proportion of professional fees for e-filing suggests that the role of tax professionals in promoting the e-filing system is important. The incidence of higher fees being paid to tax professionals indicated that more e-filers used the tax professional service. This situation also indicated that e-filing did not reduce the tax professional fees. One important effect from the use of e-filing is that the average non-IT expenditure for all e-filing respondents indicates a lower percentage than that for manual respondents. A comparison of monetary costs between e-filing and manual filing is presented using bar charts in Figure 8.1.

¹⁰² Refer to Table 7.28 in Section 7.4.1, Chapter 7.

Figure 8.1: Average Monetary Costs for All Respondents, 2010



The statistical examination using a Mann-Whitney U test confirmed that IT expenditure differed significantly between e-filers and manual filers. The finding on a small percentage of IT expenditure from total monetary costs suggests that the IT expenditure is not a critical item for PIT payers. This is possibly because the e-filing system for PIT payers in Malaysia is embedded with tax software and available free of charge.¹⁰³ Although the free system is similar to Australian e-tax, the Malaysian e-filing system is a web-based system, which means an internet connection is required to access the free e-filing system and to fill in the electronic form, while the Australian e-tax only requires an internet connection in order to download and to lodge the electronic form. Thus Australian taxpayers can fill in the electronic form offline. The effect of compliance costs between web-based and offline filling is not covered in the present study.

The second reason for non-important IT expenditure for PIT payers in Malaysia may be because the proportion of internet use for tax matters is clearly minimal. Although the e-filing system in Malaysia requires an internet connection to finish the filing processes, the internet access for filing tax returns is simply a small portion of total online time per year. On average, e-filing merely requires less than 10 hours to complete as found by the present study. People may surf the internet for tax matters, but the internet is also necessary for everyday use. In the USA for example, it is

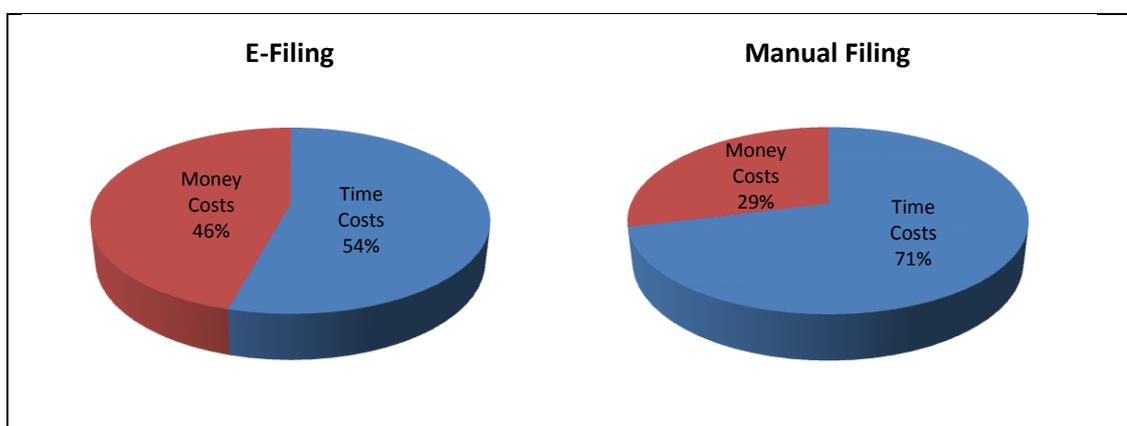
¹⁰³ The tax software, however, may be useful for self-employed persons for proper record-keeping and easy retrieval for future filing.

indicated that the internet is mostly used for social networking, games and emails rather than for taxation or e-government purposes (Nielson.com, 2010).

8.3.1.3 Comparison of Total Compliance Costs

Individually, comparison of compliance time costs showed an average costs saving of about 25 percent under the e-filing system as compared to manual filing. On the contrary, average monetary costs were higher for e-filing than for manual filing by almost 54 percent. Thus the total compliance costs saving under the e-filing system (using the mean reported value of time) was less than two percent or about RM13 per taxpayer.¹⁰⁴ It is sometimes not encouraging to use e-filing when considering that the median value of time is used to calculate the difference between e-filing and manual filing compliance costs since the compliance costs for e-filing is higher than for manual filing. As a result, reasons for high monetary costs for e-filers warrant further investigation. A comparison of compliance costs components using mean reported value for e-filing and manual filing methods are depicted in Figure 8.2.

Figure 8.2: Compliance Costs Components for E-filing and Manual Filing



In answering who benefits most from e-filing, it is necessary to investigate the trade-off between compliance costs and administrative costs. Sandford (1995b, pp. 406-407) states that it is extremely unfair and meaningless to compare compliance costs results without reference to administrative costs because there is a transfer of costs between taxpayers and the tax administrator. It is estimated that the benefit or costs saving for the tax administrator or the IRBM is larger than the individual taxpayer saving.

¹⁰⁴ Refer to Table 7.29 in Section 7.5.1, Chapter 7.

In 2009, the cost saving is valued at RM3.73 per return for printing and mailing and the decrease in processing time from 10 activities per week to three activities per day (Inland Revenue Board of Malaysia, 2009b, p. 19). Using the costs saving of printing and mailing, it is estimated that the IRBM could save more than RM5.4 million as a result of 1,460,209 PIT payers using the e-filing system in 2009.¹⁰⁵ The savings are even higher if reduced processing time or activities can be estimated in monetary costs.

Moreover, the administrative costs for 2009 also showed a reduction from RM1.17 per RM100 tax collected in 2008 to RM1.04 per RM100 tax collected in 2009 (Inland Revenue Board of Malaysia, 2010a, p. 25). The reduced administrative costs may be partly due to the e-filing system. Therefore, it is fair to say that at the current stage of e-filing in Malaysia, the system seems to be more beneficial for tax administration rather than for the users. There are many areas that can be improved to make e-filing more attractive to taxpayers such as reducing *completetime*, *advicetime* and *helptime*, training and improving the infrastructure for computer and internet access. The next section compares the present study's results with the previous Malaysian and international findings on compliance costs.

8.3.2 Comparison with Previous Malaysian Studies

Studies of tax compliance costs in Malaysia are still at a stage of infancy and much emphasise is given to companies (large or SMEs) rather than individuals. Studies were started by Loh et al. (1997) to investigate the compliance costs for publicly listed companies in 1995. It was followed by studies on SME compliance costs by Hanefah et al. (2001) and Mansor et al. (2004). Recently, a series of studies on SME compliance costs was conducted to investigate the effect of SAS on SME compliance costs (Abdul-Jabbar & Pope, 2008a, 2008b; Abdul-Jabbar, 2009).

To the knowledge of the author, there is only one published study on compliance costs for PIT payers in Malaysia, and it was conducted by Sapiei and Abdullah (2008). However, the study by Sapiei and Abdullah was only a simple study that estimated time spent and monetary expenditure separately. Moreover, the sample

¹⁰⁵ However, this is only a gross estimation of cost saving, without taking into account the investment costs.

coverage only focused on PIT payers in the Klang Valley area, which might not be representative of the whole PIT payer population in Malaysia.

There is also an unpublished PhD thesis by Hanefah (1996). The thesis actually examines the factors that affecting voluntary compliance, one of which is compliance costs. Hanefah examined the compliance costs of self-employed persons and other PIT payers in relation to the SAS. The costs examined only related to time spent with tax professionals, time spent for record-keeping and time spent for researching and monetary fees to tax professionals. The coverage of compliance costs by Hanefah is considered to be not comprehensive because there were only three time spent items and one monetary costs item specified in his questionnaire.

The details provided in both the Hanefah (1996) and Sapiei and Abdullah (2008) studies indicate a few similarities with the current study. First, all the studies classified compliance costs into time and monetary costs, which are the quantifiable items only. Secondly, record-keeping was found to be the activity that consumed the largest portion of compliance time. Thirdly, fees paid to tax professionals were the highest monetary costs item. Finally, all three studies agree that the majority of PIT payers in Malaysia preferred to fulfil their tax responsibility themselves rather than using a paid preparer. However, none of the previous Malaysian studies discussed the effect of e-filing as in the present study.

The present study provides a clearer picture of compliance costs for PIT payers in Malaysia because it reports the compliance costs in total and by filing methods. Reporting by filing methods highlights the items that need to be given higher priority if the e-filing take-up rate is to be increased. Among them are the high monetary costs for e-filers, the high employment of free helpers and paid preparers for e-filers, and the self-employed group that suffers high compliance costs. Details of the three studies are presented in Table 8.5.

Table 8.5: Malaysian Studies on Personal Income Taxpayers' Compliance Costs

Items	Hanefah (1996)	Sapiei and Abdullah (2008)	Present study		
Year under review	1995	2007	2010		
Sample	Employed and self-employed taxpayers in Kuala Lumpur, Alor Setar and Kangar	PIT payers in Klang Valley	PIT payers in all states of Malaysia		
Sample size (Response rate)	248 (83%)	144 (29%)	242 (10%)		
Data collection method	Structured personal interview	Mail questionnaire	Mail questionnaire		
Type of costs	Time spent and other expenses	Time costs and monetary costs	Time costs and monetary costs		
	All	All	All	E-filing	Manual filing
Percentage of costs:					
Time	Not specified	Not specified	61%	54%	71%
Money			39%	46%	29%
Average compliance costs per taxpayer	Not specified	Not specified – report time and money costs separately	RM663*	RM656*	RM674*
Average time spent	Not specified (80% of respondents spent less than 5 hours)	70.60 hours	11.17 hours	9.84 hours	13.24 hours
Average monetary costs	RM250 (only for tax agent costs)	RM188	RM259	RM300	RM195
Main item for time spent	Record-Keeping	Record-keeping	Record-keeping	Record-keeping	Record-keeping
Main item for monetary	Tax professional fees	Tax professional fees	Tax professional fees	Tax professional fees	Tax professional fees
Return preparation:					
Self-prepared	71.6%	69 %	61.6%	57.8%	67.4%
Paid-preparer	19.60%	29%	15.7%	13.6%	18.9%
Free-helper	8.80%	2%	20.2%	26.5%	10.5%
Paid-preparer and Free-helper	-	-	2.5%	2.0%	3.2%
Highest compliance costs group	Self-employed	Not specified	Self-employed	Self-employed	Self-employed

Note: *Using mean reported value of time.

Source: Hanefah (1996), Sapiei and Abdullah (2008) and author.

8.3.3 Comparison with International Studies

International studies on compliance costs of PIT payers is more comprehensive in terms of methodology and results presented as well as more detailed discussion provided. Comparison between the current findings and international studies might shed light on the current level of tax compliance costs for Malaysian PIT payers. International comparisons should be done with extra caution due to: differences in data collection and samples; definition employed for compliance costs; value of time; and differences in tax structures (Sandford, 1995b, p. 405-406). However, Sandford (1995b, p. 407), also notes that international comparison is meaningful to confirm the broad findings of the research studies. The popular basis for comparison which has been utilised in previous studies includes the use of compliance costs as a proportion of tax revenue for the specific tax, in total and/or GDP (see, for example, Pope et al., 1990, p. 33).

For the present study, compliance costs were estimated at the disaggregated level. This is because the data for grossing up procedures such as a percentage of PIT payers according to level of income and percentage of taxpayers who employed a paid preparer was not available for more accurate estimation. In other words, the sample of survey respondents was not reweighted in order to represent the YA2009 income distribution. Therefore, the possible comparison was based on the percentage of compliance costs from total annual income of PIT payers. A gross calculation on the percentage of compliance costs from the total tax revenue for PIT payers (by multiplying the disaggregated average with the total PIT population) was possible for the purpose of international comparison. However, it should be noted that it is not an accurate calculation but rather a simpler and cruder estimate.

8.3.3.1 Estimated Total Compliance Costs of the Personal Income Tax System

Using the estimated compliance costs at the disaggregated level of RM663 (time is valued using average reported value), it is estimated that the total compliance costs for PIT payers in Malaysia for the YA 2009 was RM3,173 million (or about AUD1,087 million).¹⁰⁶ Using the median value of time, it is estimated that the total compliance costs were at RM2,307 million (or about AUD790 million). The

¹⁰⁶ Exchange rate: RM1=AUD0.3425. Refer to Section 1.2.9 for exchange rate used.

estimates indicated that the level of total compliance costs ranged between 14.81 percent and 20.37 percent of total PIT revenue collected for the YA2009.¹⁰⁷

Comparison of compliance costs as a percentage of PIT revenue indicated that Malaysian PIT compliance costs (15 to 20 percent) were higher than in other developed countries including Australia, as estimated by Pope et al. (1990, p. 50) at between 7.9 percent and 10.8 percent and by Evans et al. (1997, p. 27) at four percent of net tax revenue. It should be noted that the reasons for large differences are probably due to different methodology in estimating compliance costs, and tax system in relevant countries. Moreover, the estimate for the present study was a rough estimate of gross compliance costs for the whole PIT payer population.

It should also be noted that the high percentage of compliance costs as a proportion of PIT revenue in Malaysia was due to lower PIT collection as compared to other developed countries. This situation (low PIT revenue) may suggest that the majority of PIT payers in Malaysia fall into the low taxable income category and there may also be issues of tax avoidance or evasion.¹⁰⁸ Detailed comparisons for total compliance costs as a percentage of PIT revenue, breakdown of time and monetary costs and the average time spent according to the country are presented in Table 8.6.

¹⁰⁷ PIT revenue for 2009 is of RM15.57 billion (Inland Revenue Board of Malaysia, 2010a, p. 24). Calculation for percentage of tax revenue: 1) using median value: $2.30b/15.57b \times 100$, 2) using average reported value: $3.17b/15.57b \times 100$.

¹⁰⁸ Unfortunately, there is no data available from the tax authority.

Table 8.6: International Comparisons as Percentage of Personal Income Tax Revenue

Country	Study	Average Time Spent (hours)	Percentage of Time Costs (%)	Percentage of Monetary Costs (%)	Total CC ^a as a Percentage of Tax Revenue
UK	Sandford, Godwin & Hardwick (1989)	3.6	46.3 ^b	53.7 ^b	3.6
Australia	Pope, Fayle & Duncanson (1990)	10.7	65.1	34.9	7.9-10.8
	Evans, Ritchie, Tran-Nam & Walpole (1997)	8.5	56.9	30 ^c	4.0
USA	Slemrod & Sorum (1984)	21.7	84.0	3.4	5.0-7.0
	Blumenthal & Slemrod (1992)	27.4	78.2	3.2	5.6
	Guyton, O'Hare, Stavrianos & Toder (2003)	25.5	96.5	3.5	n/a
	Slemrod (2004)	-	-	-	11.1
Netherlands	Allers (1994)	4.5	-	-	1.4
Canada	Vaillancourt (1989)	5.5	-	-	3.0
	Vaillancourt & Clemens, (2008)	5.35	83.55	16.45	1.7-3.3
	Vaillancourt (2010)	7.16	64.57	35.43	2.2-3.2
Spain	Diaz & Delgado (1995)	6.8	-	-	3.3
Sweden	Malmer (1995)	1.4	-	-	1.7
Slovenia	Klun (2004)	1.7	89.6	10.4	2.5
	Klun (2009): tax year 2006	0.89	69.5	30.5	0.9
	tax year 2007	0.49	n/a	n/a	0.5
India	Chattopadhyay & Das-Gupta (2002)	20.9	61.92 ^d	38.08 ^d	49.0
Malaysia	Present study	11.17	60.93	39.07	14.8 - 20.4

Notes:

^a CC stands for compliance costs.

^b Calculated by current author using information from (Sandford et al., 1989, p. 72, Table 5.5).

^c There is one more cost component named Cash Flow Costs accounted for 13.1 percent.

^d Calculated by current author using information from (Chattopadhyay & Das-Gupta, 2002b, pp. 21&23, Tables 4.6 and 4.12). This is only for legal compliance costs.

Source: Developed by author.

8.3.3.2 Breakdown of Total Compliance Costs

The findings on the breakdown of total compliance costs compare favourably with those found in Australia (Pope et al., 1990), India (Chattopadhyay & Das-Gupta, 2002a), and Canada as summarised in Table 8.6. Most of the countries' compliance costs estimates indicated that the time costs were higher than the monetary costs except in the UK (monetary costs = 53.7 percent). In the USA, Canada and Slovenia the monetary costs were a very small portion compared to time costs. However, the trend in Canada (Vaillancourt, 2010) and Slovenia (Klun, 2009) indicated that the percentage of monetary costs increases. This is probably due to the use of tax software and e-filing as well as the increased use of paid preparers. The present study however, reveals that the use of paid tax professionals in completing PIT return forms among Malaysians was not as high as among Australian or UK taxpayers.

8.3.3.3 Number of Hours Spent on Tax Affairs

Estimated average compliance time spent for the present study was 11.17 hours per taxpayer. This estimation was higher than most European countries such as the UK, Netherlands and Spain, as well as Sweden, with a range of between 1.4 hours and 7.16 hours. The possible reason may be due to the system in those countries being different from that in Malaysia. For example, the UK uses a PAYE system which excludes a majority of PIT payers from lodging annual returns, while in the Netherlands, Spain and Sweden, a pre-filled return system might have been implemented where the tax authority prepares the return for taxpayers, thus reducing compliance costs.

The current finding is about similar to the Australian estimates of 10.7 hours by Pope et al. (1990), but much lower than the time spent according to estimates in the USA and India (more than 20 hours), as indicated in Table 8.6. Slovenia's findings on average time spent for the tax year 2006 and 2007 of less than one hour are difficult to accept, but their author claimed that the lower time spent was due to a pre-filling system as well as substantial tax reforms (Klun, 2009, p. 231). It should also be noted that components of time spent vary according to studies. For example, Vaillancourt's (1989, p. 26-28) estimate of 5.5 hours average time spent did not include time for planning while the present study includes this component.

The present study found that the biggest portion of time was devoted to record-keeping (20.4 percent of total average time spent). This situation is perhaps due to too many reliefs and rebates available for PIT payers in Malaysia where they have to keep all their records in order to claim. This finding supports previous findings in the USA by Slemrod and Sorum (1984, p. 467) and Blumenthal and Slemrod (1992, p. 190), in Canada by Vaillancourt (1989, p. 28), and in India by Chattopadhyay and Das-Gupta (2002a, p. 20).

8.3.3.4 Compliance Costs by Annual Income Group

In the present study, using survey data only, compliance costs were found to have a positive relationship with annual income. This means that the costs were higher for the higher annual income groups in terms of absolute money cost. However, if

compliance costs are calculated as a percentage of the annual income groups, the proportion of compliance costs for the lowest annual income group was the highest and it decreased with the increase of annual income group level. The portion of compliance costs for the lowest group of income was 2.6 percent. It decreased to 0.92 for the second group, 0.81 for the third group and finally to only about 0.18 percent for the highest annual income category. This indicated that the compliance costs as a percentage of annual income were regressive, that is, they were a relatively higher burden on the lower income groups than on the higher income groups. These findings are similar to nearly all international studies including Klun (2004), Moody et al. (2005) and Vaillancourt (2010).

8.3.3.5 Compliance Costs by Level of Education

Many international studies indicate that compliance costs are affected by education with more costs being incurred by highly educated taxpayers (see, for example, Vaillancourt, 1989; Blumenthal & Slemrod, 1992; Allers, 1994; Klun, 2004). The present study supports the previous international findings on educational attainment and compliance costs. However, in a slightly different context, the present study found that the middle educational attainment group had lower compliance costs than the lowest educational group. The difference from international findings might be due to a majority of the lowest education attainment group consisting of self-employed taxpayers, who suffered higher compliance costs.

8.3.3.6 Compliance Costs by Employment Status

Findings by the present study that self-employed suffer the highest compliance costs confirm findings as found in nearly all international studies (see, for example, Pope et al., 1990; Blumenthal & Slemrod, 1992; Malmer, 1995; Evans et al., 1997). The main reason for high compliance costs is identified as being complexity of a taxpayer's tax situation (Vaillancourt, 1989, p. 45). The findings in this study that the majority of self-employed were Chinese and many of them had a lower educational attainment reflect the socioeconomic imbalance found in Malaysia. Various projects have been carried out by the government to reduce this imbalance since Independence Day in 1957 (as evidenced by the First Malaysia Plan until the tenth

Malaysia Plan),¹⁰⁹ however, changes have been very minimal.

8.3.3.7 Compliance Costs by Methods of Filing

The present study estimates the compliance costs in total for PIT payers and also by filing methods to investigate the effect of tax e-filing on compliance costs. It is found that e-filing affected compliance costs in a few ways such as on certain compliance time activities (*advicetime*, *helptime*, *submittime* and *completetime*) and by certain respondent characteristics (ethnicity, educational attainment and income groups). This type of reporting of compliance costs, although having been done by a few recent studies, have not however undertaken an extensive comparison between e-filing and manual filing as in the present study.

Nonetheless, the IRS in the USA changed its methodology and reporting of compliance costs by type of return form to a more flexible reporting. The new methodology was published by Guyton et al. (2003). Using the new methodology, Guyton et al. (2005, p. 442) estimated that those who use tax software in the USA spent more “out-of-pocket costs”. This finding is most similar to the present study’s finding, which showed that e-filers spent more on IT-expenditure than the manual filers. Vaillancourt (2010, p. 19) also reported the effect of different completion modes on compliance time. He found that those who prepared the return themselves using tax software incurred more time than those who prepared on paper. However, he did not specifically identify time activities affected by the e-filing method.

8.4 Chapter Summary

This chapter presented the discussion of findings on determinants of the tax e-filing behaviour in Malaysia (Chapter 6) and compliance costs and the effect of e-filing (Chapter 7).

A comparison with previous studies on the determinants of e-filing acceptance indicated differences in methodology but some similarity in findings. While many previous studies utilised multiple regression analysis or SEM and focused on the intention to use rather than the actual behaviour, the present study used a logistic

¹⁰⁹ Refer to the web page of the Economic Planning Unit, Malaysia at <http://www.epu.gov.my/previousplan> for details on Malaysia Plans.

regression that tested the e-filing usage behaviour when using the e-filing system. Nonetheless, the result on *PU* indicates that regardless of methods or dependent variables tested and the research setting (whether internationally or locally in Malaysia), it was a statistically significant determinant of e-filing acceptance. The finding on *anxiety* also supports the previous findings on perceived risk or insecurity in the sense that they were negatively related to the acceptance/use of e-filing.

A comparison of the current take-up rate of e-filing among PIT payers in Malaysia with the international rate such as in the USA and the Australia, indicated that Malaysia is still far behind the satisfactory level of e-filing usage. Male, younger taxpayers with higher educational attainment and who live in urban areas were among the main examples of those who used the e-filing system in this study. It is found that with a large amount of investment and the efficiency offered by the e-filing system to the tax administrative especially, the take-up rate of e-filing should be increased. Moreover, there are a lot of opportunities to increase the take-up rate as suggested by the findings from this study and international experiences.

A comparison of compliance costs findings with previous Malaysian and international literature indicated a number of similarities. For example, time costs were found to be a larger proportion than money costs, tax professional fees were the most significant monetary costs, record-keeping was the activity that contributed the highest time costs and being self-employed was a main characteristic of high compliance costs. A little different from international studies (especially in the USA and Australia) was the finding that many PIT payers in Malaysia preferred to prepare their returns themselves rather than use tax agents. A comparison of compliance costs as a percentage of specific tax revenue indicated that compliance costs in Malaysia were between 14.8 to 20.4 percent of PIT revenue, which was higher than the international rates, for example, Vaillancourt (2010) indicated that in Canada, compliance costs were about 2.2 to 3.2 percent of PIT revenue only.

This chapter concluded with suggestions on ways to increase the take-up rate of e-filing which include the integration of a pre-filing system to the current e-filing system. In the next chapter, the overall conclusions, limitations of the study, implications of the study and future directions for research are discussed.

Chapter 9

Conclusions

9.1 Introduction

This final chapter presents conclusions on the major findings of the tax e-filing usage determinants and compliance costs for PIT payers in Malaysia. This study was motivated by concerns about the unsatisfactory tax e-filing take-up rate among PIT payers in Malaysia. In light of the changing methods of filing tax, e-filing is considered useful and more efficient as it enables the tax administration to handle a large number of taxpayers. However, the system should significantly reduce the compliance costs for its users in order to promote its adoption by many more taxpayers.

Personal income taxpayers are the largest population of taxpayers in Malaysia¹¹⁰ and, given the scarce human resources to deal with the demand, it is indeed desirable for the tax administration to achieve a high percentage of e-filing usage. Moreover, the large amount of investment in the development of the e-filing system, which was reported at more than RM34 million for the period of 2006 to 2011 (Inland Revenue Board of Malaysia, 2009b, p. 16), needs to be recovered. Nonetheless, there remains a large portion of taxpayers who refuse to use the system. In YA, 2009, the users of this system accounted for about one-third of total PIT payers, which means another two-thirds did not use the e-filing system (author's calculation from Inland Revenue Board of Malaysia, 2010a, pp. 46 & 50).

This low take-up rate indicates problems in user acceptance of the system. Although the system can substantially reduce work and ultimately the administrative costs of the IRBM, the taxpayers may not consider the system to be good enough for their own purposes. Therefore, this study was conducted mainly to investigate the determinants of e-filing usage behaviour and the effect of e-filing on compliance costs (by comparing the compliance costs for e-filers and manual filers in this study). In achieving the objectives of this thesis, answers for the minor and major research

¹¹⁰ It was reported that PIT payers accounted for about 88 percent of the total number of taxpayers; specifically, the numbers of PIT payers were 4.79 million and 5.04 million for 2009 and 2010 respectively (Inland Revenue Board of Malaysia, 2010a, p. 50; 2011a, p. 38).

questions are presented in this chapter.

This chapter contains six major sections. After this introduction, a summary of the major findings is presented by reference to the research questions. Next, implications of the study are considered before limitations of the study are discussed. Following that, the author's concluding remarks on this thesis are presented. Finally, the chapter ends with some suggested directions for future research.

9.2 Summary of Major Findings

9.2.1 Determinants of E-Filing Usage Behaviour

Findings on the determinants of e-filing usage behaviour were mainly reported in Chapter 6 and the findings related to the determinants were discussed in Chapter 8 (Sections 8.2 and 8.3). Table 9.1 summarises the research questions and the findings regarding the determinants of e-filing usage behaviour among PIT payers in Malaysia.

Table 9.1: Research Questions and Findings – Determinants of E-Filing Usage Behaviour

Research Question	Findings
Major	
What are the factors that determine the e-filing usage behaviour among personal income taxpayers in Malaysia?	It is found that two variables are statistically significant determinants of the e-filing usage behaviour. They are <i>PU</i> and <i>anxiety</i> . The other two variables, <i>self-ability</i> and <i>external influence</i> , fit well in the developed model, but are not statistically significant determinants. (Refer Chapter 6, Sections 6.4.4).
Minor	
1. What is the current level of acceptance of the e-filing system among personal income taxpayers in Malaysia?	The level of e-filing acceptance among personal taxpayers in Malaysia is considered unsatisfactory. The number of users, although increasing, only accounts for about one-third of the total PIT payers (Inland Revenue Board of Malaysia, 2010a). (Refer Chapter 8, Section 8.2.3).
2. What are the characteristics of e-filers and manual filers?	The majority of e-filers are male, aged less than 45 and salaried taxpayers. Most of them are Malays and more educated (holding at least a diploma). The majority live in the Klang Valley (urban area). In contrast, the majority of manual filers are female, aged between 45 to 64 and are self-employed. Most of them are Chinese, have low educational attainment, and live in the

Research Question	Findings
3. Is it desirable to increase the take-up rate of e-filing?	eastern part of peninsular Malaysia (rural area). (Refer Chapters 5 and 8, Sections 5.3 and 8.2.4 respectively). An assessment of the desirability of increasing the take-up rate of e-filing is based on the benefits and savings offered by the system. Data from the IRBM indicates that millions of dollars could be saved if most PIT payers used the system, as the PIT payers are the largest number of total taxpayers. For this reason, it can be concluded that it is desirable to increase the take-up rate of e-filing. (Refer Chapter 8, Section 8.2.5).
4. If so, how can the take-up rate be increased?	Suggestions for ways to increase the take-up rate of e-filing follow the findings from significant determinants of e-filing usage behaviour and the background or characteristics of manual filers or non-e-filers. It is suggested that perceptions of the usefulness of e-filing should be increased and the feelings of anxiety among taxpayers should be abated. The IRBM should focus with specific strategies on those who have low perceptions of e-filing usefulness and high anxiety levels according to a taxpayer's background. (Refer Chapter 8, Section 8.2.6).
5. What are the perceptions of personal taxpayers towards a pre-filled return system in Malaysia?	As part of the e-filing system, a pre-filled return system could be introduced. This study reveals that respondents were not familiar with the concept of pre-filing, and, therefore, many could not provide their opinion and attitude towards the statements provided. The area of concern is the security of data. Nonetheless, the majority of respondents agreed that pre-filing will help solve the problem of complexity and will reduce non-compliance. (Refer Chapter 6, Sections 6.5).

Based on the discussion presented in the previous chapters regarding the determinants of e-filing usage behaviour, it is concluded that the use of the system will increase when the perception that the system is useful is widely held and the *anxiety* level is low. The results, however, revealed that perception on *self-ability* was not a statistically significant determinant. This is somewhat different from previous literature which suggests that high *anxiety* can lower the *self-ability* perception (Stumpf et al., 1987). In short, it is deduced that the IRBM should focus extra attention on *PU* and *anxiety* as both factors influence the decision of taxpayers to adopt or not adopt the e-filing system. Education about e-filing must go beyond how to use the system, as taxpayers do not regard themselves as having less self-ability to e-file.

9.2.2 E-Filing and Compliance Costs

In relation to the research questions regarding e-filing and compliance costs, Table 9.2 provides a summary of the findings, derived mainly from the discussion in Chapters 7 and 8 of this thesis.

Table 9.2: Research Questions and Findings – Effect on Compliance Costs

Research Question	Findings
Major	
What is the effect of the e-filing system on compliance costs for personal income taxpayers in Malaysia?	<p>Overall, the effect of e-filing on compliance costs was not statistically significantly different from manual filing. However, a comparison of the components of time spent indicated that time taken for getting advice (<i>advicetime</i>) and time for a free helper (<i>helptime</i>) were two components that were statistically significantly different. Removal of cases that employed a tax professional indicated that time for submitting the return form (<i>submittime</i>) was statistically significantly different. IT expenditure also showed a statistically significant difference between e-filing and manual filing.</p> <p>In terms of time distribution, it was found that only time spent of less than six hours had an impact on e-filing. Otherwise, the use of manual filing was about the same between e-filers and manual filers for those who spent more than six hours. (Refer Chapters 7 and 8, Sections 7.3, 7.4, 7.5 and 8.3).</p>
Minor	
1. What are the overall estimated compliance costs for PIT payers in Malaysia?	It was estimated that the overall average compliance costs for PIT payers in Malaysia was between RM481 (using median value) and RM663 (using mean reported value of time) in 2010. (Refer Chapter 7, Section 7.2).
2. What is the magnitude of compliance costs for PIT payers in Malaysia?	<p>The average time spent (11.7 hours) constituted about 61 percent of total compliance costs, while the remaining costs were monetary costs.</p> <p>The highest time spent was devoted to record keeping activities for both e-filing and manual filing methods.</p> <p>The high compliance costs were primarily characterised by employment status (self-employed), annual income group (the highest group earned RM150,000 or more), and educational attainment (high education levels).</p> <p>Similar to previous literature, this study found that compliance costs by level of income were regressive; with the low income earner incurring a larger proportion of compliance costs compared to the high income earner. (Refer Chapter 7, Section 7.2.3).</p>

Research Question	Findings
3. What is the difference between compliance costs for e-filing and manual filing?	Using the mean reported value of time, the average compliance costs for e-filing and manual filing were estimated at RM658 and RM670, respectively. The statistical test indicated that the difference between e-filing and manual filing was not statistically significant. (Refer Chapters 7 and 8, Sections 7.3, 7.4, 7.5 and 8.3.1, and Table 7.29 in Section 7.5.1, Chapter 7).
4. Which compliance costs items/activities differ significantly between the manual and e-filing systems?	<p>In terms of time spent, it was found that only <i>advicetime</i> and <i>helptime</i> were statistically significantly different between e-filing and manual filing. Not surprisingly, the time for both activities was found to be higher under the e-filing system compared to the manual system. In addition, <i>submittime</i> was found to be statistically significantly different by removing the cases that employed a tax professional. Clearly, the <i>submittime</i> under the e-filing system was much better than under the manual filing system.</p> <p>In terms of monetary expenditure, IT expenditure was found to be statistically significantly different between the e-filing system and manual filing system where the e-filing IT expenditure was much higher than in the manual filing system. (Refer Chapters 7 and 8, Sections 7.3.3, 7.3.9, 7.4 and 8.3.1).</p>
5. What is the level of compliance costs for the PIT system in Malaysia compared to other countries?	<p>It was estimated that the level of total compliance costs in Malaysia ranged between 14.81 percent and 20.37 percent of total PIT revenue collected for the YA2009, or between 0.34 and 0.47 percent of GDP. The findings indicated that the level of compliance costs in Malaysia was higher than the levels found by most previous studies in developed countries.</p> <p>However, analysis of compliance costs according to time and money spent indicated that Malaysian PIT payers are comparable to Australia (Pope et al., 1990), Canada (Vaillancourt, 2010), Slovenia (Klun, 2009) (for the tax year 2006) and India (Chattopadhyay & Das-Gupta, 2002a). (Refer Chapter 8, Section 8.3.3).</p>

Overall, the findings indicated that although the average total compliance costs for e-filing were lower than the manual filing, the difference was not statistically significant. Moreover, three significantly different items were in favour of manual filing: that is, *advicetime*, *helptime* and IT expenditure were higher for e-filing than for the manual filing method. The causes of high levels of *advicetime*, *helptime* and IT expenditure should therefore be investigated in the future. Only *submittime* was statistically significant in reducing the e-filing time as compared to manual filing. E-filing benefits simple tax affairs but not really reduce compliance costs for complex

tax affairs, that is, the tax affairs of those who are self-employed and need to employ a professional adviser.

9.3 Implications of the Study

9.3.1 For Policy-Makers

9.3.1.1 Recognition of Compliance Costs

The issue of compliance costs has been neglected by the Malaysian tax administration and government, yet this issue is very important due to the size of the costs and their effects (Sandford et al., 1989, p. 209). In the IRBM Strategic Plan 2009-2013, compliance costs are not included among the 11 objectives identified for customers. Rather, the plan focuses on improving operational efficiency and reducing administrative costs (Inland Revenue Board of Malaysia, 2010a, pp. 80-81). This trade-off between the administrative costs and compliance costs of taxpayers has been recognised in previous literature (see, for example, Sandford, 1973; Sandford et al., 1989; Pope, 1993a). It is normally the reduction of administrative costs at the expense of compliance costs by taxpayers.

According to Pope's (1993b) phases of compliance costs development, Malaysia has probably achieved the second stage, which is referred to as the stage of "professional, qualitative recognition" whereby tax practitioners and academics recognise the compliance costs being imposed on taxpayers and speak and write publicly on the subject. Although there are some studies in Malaysia that try to estimate compliance costs (which is the kind of activity that characterises the third stage in Pope's development stages), either for PIT or corporate taxpayers, the estimations might not be very useful without the help and support of the tax authority. Without tax authority cooperation, studies usually include a limited sample that reduces their representativeness of the population. Moreover, the IRBM might not recognise the estimations as valid evidence to be used in their policy-making. As a result, support from the IRBM as a tax authority is required to foster the "policy recognition" stage.

It is suggested that the IRBM collaborates with academics to produce a methodology to estimate compliance costs and that it funds research into compliance costs. This

collaboration will help the IRBM to identify the areas needing improvement. The research would be free from bias because it is not conducted by IRBM officers. In Australia, for example, the ATO has collaborated with academics and funded research to develop the best methodology to estimate the compliance costs for individual and corporate taxpayers in Australia (Evans et al., 1997).

9.3.1.2 E-Filing Impact Statement

In developed countries such as Australia and New Zealand (see, for example, Evans & Walpole, 1997; Sawyer, 2002), the requirement to establish a compliance costs impact statement is not a new phenomenon. In Australia for example, the requirement to establish a Regulation Impact Statement (RIS) has been implemented since 1996 to accompany any changes in tax legislation (Australian Taxation Office, 2000). The benefits of an RIS are that it assists the Treasury and the ATO to identify areas where compliance burdens are high and to ensure that any changes are practical and realistic.

An annual impact statement to evaluate the effectiveness of the PIT e-filing system, similar to the RIS in Australia, is probably fruitful for the IRBM. It may help the policy-makers to identify areas that need improvement and to reduce compliance costs in order to increase the take-up rate of tax e-filing system. Based on the impact statement related to e-filing, the IRBM may develop programs to overcome the problem or to achieve a specific target. After that, review of the progress, problems encountered and solutions may be provided in the future annual impact statements. This will be beneficial to oversee the progress of a project undertaken.

In relation to the e-filing impact statement, a specific body that consists not only of the IRBM officials, but also outsiders who can represent taxpayers such as tax agents or academics or trade associations, may be formed to ensure the objectives of the e-filing impact statement is achieved and meeting the taxpayers' needs. By including the views of taxpayers in the government or IRBM decision-making, taxpayers will feel their voices are heard. This may increase the image of the tax authority and ultimately increase the trust from taxpayers towards government. Trust is an important element in government because mistrust is argued to make consensus harder to achieve (Neustadt, 1997, p. 181).

In the USA, for example, the IRS set the goal to achieve 80 percent submission of total income tax returns. The IRS took action to ensure the objective remains achievable by establishing the Electronic Tax Administration Advisory Committee in 1998 to advise the IRS regarding electronic tax administration issues. Malaysia may learn these lessons from the USA. However, it is noted that Malaysia is working hard to ensure that the high speed internet is available to all Malaysian.

9.3.1.3 Special Education and Training for Specific Groups of Taxpayers and Inclusion of Mandarin Language

One way to improve the quality of the IRBM service is to increase the delivery of education and training on the e-filing system. Although such activities have been performed by the IRBM for many years, the methods may need to be reviewed. For example, the findings of this study have indicated that the filing method used (that is, e-filing or manual filing), employment status (that is employed or self-employed), as well as ethnicity groups and level of education do have a significant impact on the perceptions towards *PU*, *self-ability*, *anxiety* and *external influence*.¹¹²

People with lower levels of formal education may have had less exposure to computers and the internet. It is suggested that provision of information and training in computer and technological tools, along with involvement of users from this type of taxpayer group should be increased to mitigate fears and feelings of *anxiety* (Marquie et al., 1994, pp. 139-140). As a result, this may help to increase the take-up rate of tax e-filing system in the future.

In terms of ethnicity groups, the Chinese form the majority of those who choose not to e-file. As the majority of these taxpayers are self-employed, different approaches to assist this group might be necessary, as their *anxiety* about the e-filing system may be due to the perceived insecurity of the system (Lai et al., 2005, p. 99) and the complexity of their tax affairs. In addition, the language barrier may be one of the obstacles that cause this particular ethnic group to avoid the e-filing system. This is because currently, the system only incorporates the Malay and English languages, neither of which are their first language. Incorporation of the Mandarin language is therefore suggested.

¹¹² See Tables 6.8 to 6.12, Chapter 6.

9.3.1.4 Introduction of Pre-Filing System

A pre-filled return system optimises the IT capabilities to match the information held by the tax authority and third parties such as employers and financial institutions to pre-populate an income tax return. Such a system has been implemented successfully in many Nordic countries such as Denmark and Sweden (Organisation for Economic Co-operation and Economic Development, 2006), and many other countries including Chile (Organisation for Economic Co-operation and Economic Development, 2008b; Evans & Tran-Nam, 2011), Singapore (Inland Revenue Authority of Singapore, 2005, 2010; Singapore Government, 2011) and Slovenia (Klun, 2009). The system has also been implemented in Australia as part of the e-filing system.

The Australian pre-filled return system may be a model that suits the Malaysian setting. It is offered to those who have used the e-filing system in previous years. The objective of the system is to make the completion of the online tax return easier, faster and more personalised (Evans & Tran-Nam, 2011, p. 8). Combining the pre-filling system with the e-filing system may reduce compliance costs especially the time related to completing a return form. This may attract PIT payers who only have simple tax affairs¹¹³ to use the e-filing plus pre-filling system because through the system they do not need to refer to their pay-slips (if for example, they forget where they keep those papers). Malaysia could learn from the California Ready Return Project on how the taxpayers are selected for their pre-filling project (Bankman, 2005).

9.3.2 For Taxpayers

Taxpayers are the end-users of the e-filing system. As the system is not mandatory, they have the option not to use it. They have the right to voice their views and perceptions to the IRBM. Research on compliance costs might be new to Malaysian citizens. When they receive a survey related to taxation, they may automatically link it with the IRBM. This was shown during the conduct of this study when the researcher received a letter from a respondent explaining why he did not file an

¹¹³ Taxpayers with simple tax affairs refer to those who only receive employment income, are single and do not claim unstandardised personal relief and rebates.

income tax return for the particular year being surveyed and informing the author about his status as if the researcher was an IRBM officer. Nonetheless, extra care had been taken to emphasise in the letter accompanying the survey that the study was not being conducted by the IRBM.

Respondents may also believe that the research would have little influence on the government.¹¹⁴ This mindset may be a result of low levels of trust in government, which is identified as one of the main determinants of low tax morale (Torgler, 2003, p. 294). In this study, selected taxpayers were given an opportunity to explain their perceptions and express their opinions on the topic. It is hoped that Malaysians will, over time, become more familiar with and more willing to participate in taxation research conducted by academics. The findings presented in this study may help taxpayers planning their effort towards completing their annual tax return and evaluating their own tax compliance costs.

Mandating the e-filing system for PIT is suggested in order to improve the take-up rates of e-filing due to the low voluntary take-up rate. As Malaysians have been exposed to internet and online transactions, making the e-filing tax system compulsory as a strategy to increase e-filing in Malaysia is possible. The number of internet users in Malaysia for the year 2010 was reported to be 61 percent with the majority of them being adults. This figure is increasing (International Telecommunication Union, 2011). The Malaysian government is also improving the broadband accessibility for all Malaysians in urban and rural areas (see Malaysian Communications and Multimedia Commission, 2010-2012). Making the system compulsory could save millions of dollars.¹¹⁵ It is reported that the trend in making the e-filing system compulsory among PIT in OECD countries is increasing, which reflects the significant benefits offered by the system (Organisation for Economic Co-operation and Economic Development, 2010, p. 44). Although a mandatory environment would skew compliance costs in the beginning years, these costs would reduce as taxpayers gain more experience, as suggested by the current study's

¹¹⁴ In the open-ended comment section, one of the respondents asked how far the findings of this study could influence the IRBM's decisions.

¹¹⁵ The Treasury Inspector General for Tax Administration (2009) reports that the IRS processing costs for an e-filed PIT return are USD\$0.35 as compared to USD\$2.87 for a paper return, which indicates a reduction in costs of about 88 percent.

findings.¹¹⁶

9.3.3 For Academics

Some prior studies have identified the determinants of technology acceptance, and in particular of tax e-filing acceptance (Fu et al., 2004; Fu et al., 2006; Hung et al., 2006; Ozgen & Turan, 2007; Carter & Schaupp, 2009; Abdul-Manaf et al., 2010; Che-Azmi & Bee, 2010; Dorasamy et al., 2010; Schaupp & Carter, 2010; Schaupp, Carter, & McBride, 2010). This study extends the literature on the determinants of e-filing acceptance by utilising actual usage behaviour as a dependent variable. Almost all the previous studies utilise intention to predict actual behaviour. Therefore, the findings from this study, some of which were similar to previous findings (for example *PU*), confirm the previous findings although a different method was used.

Moreover, the finding that *anxiety* was a significant determinant provides new insights for researchers. As far as the author is aware, this variable has not been included in prior studies on Malaysian e-filing acceptance. This is probably due to the non-significant finding by Venkatesh et al. (2003) who analysed eight theories of technology acceptance but found *anxiety* to be non-significant. Later researchers therefore excluded that factor from their model. The findings in the present study indicate that the factors influencing e-filing acceptance varied by location or country-specific conditions, timing or length of e-filing, and probably the different types of respondents. It is suggested that the sources of *anxiety* are identified by researchers in order to suggest ways to mitigate the feeling.

In terms of compliance costs, this study provided an estimation of PIT compliance costs in a developing country, namely Malaysia. The compliance costs estimation and comparison between e-filing and manual filing compliance costs provide an understanding about the current status of compliance costs for PIT payers. The findings also highlight areas that need further research to clarify things such as the psychological costs of taxpayers. This provides opportunities for academics to study the compliance costs of PIT in depth until it is recognised by the tax authority.

It also should be noted by academics that international comparisons with developed

¹¹⁶ See Section 7.3.10, Chapter 7.

countries might be not very useful because of different tax systems, tax structure and tax rates. For example, the individual tax rate in Malaysia as a developing country is low compared to a developed country such as Australia.¹¹⁷ This makes the total PIT revenue also low and ultimately results in higher compliance costs as a percentage of total PIT revenue for Malaysia. However, the comparison reveals the specific characteristics of the Malaysian PIT system that may be useful for other developing countries such as the low rate of paid preparer and other compliance costs items.

Moreover, the investigation of the effect of the e-filing system on compliance costs answers many lingering questions about the e-filing system, especially on whether the system really reduces taxpayers' costs. The findings from this study indicated that, at the current stage, the compliance costs of e-filing were not significantly different from the costs of manual filing. This finding raises an issue for further analysis by academics, especially the investigation of ways to lower costs, for taxpayers who e-file.

This study also introduced the concept of a pre-filled return system to the field of research in Malaysia. This system has been successfully implemented in many countries. The findings from this study have provided some insight into the awareness among PIT payers about this system and the issues associated with the introduction of such a system for Malaysia.

9.4 Limitations of the Study

Overall, this study has provided important insights into the e-filing system and compliance costs in Malaysia, a developing country. However, the study is not without limitations. First, a self-reporting mail survey questionnaire was employed in this study for data collection and this method may possess limitations. Although it is described as a standardised way to deliver information (Barribeau et al., 2005), it relies on respondents' honesty and their ability to correctly interpret the questions (Sandford, 1995b, p. 378; Axinn & Pearce, 2006, p. 4). Their interpretation might be different from the meaning intended by the researcher. This may result in measurement error as discussed by Dillman (2007). Although actions were taken to

¹¹⁷ Tax rates for Malaysian tax residents were between 1 percent and 27 percent for YA2009 and between 1 percent and 26 percent for YA2010. Tax rates for Australian tax resident were between 15 percent and 45 percent for income exceeding AUD6,000 threshold for tax year 2010/11.

minimise this problem (for example pre- and pilot tests), caution must be applied in interpreting the study's findings due to different interpretations by the respondents.

Secondly, although a mail questionnaire can reach a wide sample size in a wide geographical area with low cost (Sandford et al., 1989, p. 52), it may also result in a low response rate (Fowler, 1993, p. 59). Specifically, this study received a usable response rate of only 9.7 percent. Besides the limitations in the mail survey itself, one uncontrollable circumstance arose during the data collection stage of this study. An increase in the postage rates in Malaysia was announced only days before the survey was to be implemented. The questionnaires, which included a paid return envelope each with the old postage rate, were already ready to be distributed. An unexpected delay on the part of the IRBM which had agreed to distribute the questionnaires meant that respondents did not receive the survey until after the new postage rate took effect. The insufficient postage on the return envelopes may have contributed to the low response rate because respondents thought that they had to pay extra postage.

Although a response rate of around 10 percent is considered low compared to other international studies in taxation (see, for example, Sandford et al., 1989 (43 percent); Pope et al., 1990 (16 percent); Allers, 1994 (21 percent business and 44 percent non-business)), it is considered acceptable in Asian countries (Abdul-Jabbar & Pope, 2008a, p. 299). However, due to the use of a sample and the low response rate, the findings should be interpreted with extra caution since the data might not be representative of the whole population.

Thirdly, in identifying factors that influence the take-up rate of e-filing, it is assumed that common access for all PIT payers is the case, even though this may not actually apply in practice. This assumption is made because PIT payers should receive an annual income of more than RM24,800 (or RM2,069 per month) before having to pay tax. To receive this amount of income, it is more likely that the majority of them live and work in cities or towns where basic amenities (which include telephone and internet) are available. Nonetheless, results on significant factors that affect the take-up rates of e-filing among users and non-users, as presented in Chapter 6, should be interpreted with caution.

Fourthly, the employment of exploratory factor analysis to identify factors that determined the e-filing usage behaviour led to the combination of a few factors into one category. From seven original factors identified through previous studies, only four items were produced by the EFA. For example, *PU* and *PEOU* were included in the same factor which was renamed as *PU* in the final model. This combination limits the comparability of current and previous findings. However, as the production of factors by EFA follows high requirements of statistical procedures (for example, high Chronbach Alpha values to indicate reliability of the factors), the small number of factors does not represent a more significant problem.

Fifthly, the e-filing system and compliance costs definitions applied in this study were slightly different from the definitions used in other countries. The e-filing system in Malaysia includes the process of filling up the online form as the tax software is integrated with the e-filing system and submitting the form through the internet. In contrast, the e-filing system in the USA, for example, only includes the process of submitting the return form electronically, excluding the use of tax software to fill in the return. Meanwhile, the definition of compliance costs for the present study excludes the legal costs which some previous studies include (see, for example, Pope et al., 1990). The different definitions employed in this study may result in different findings. The different definitions employed for compliance costs has been recognised as the reason for non-comparability of compliance costs results (Sandford et al., 1989). Therefore, although the best definition was chosen to suit this study's objectives, the findings should be interpreted with caution.

Finally, the valuation of time may also present a limitation to the findings on compliance costs. At the time of writing, no published information on hourly rates for Malaysian workers is available. Therefore, the average hourly rates reported by respondents were used to estimate the compliance costs. Respondents may have overstated their reported values of hourly rates. Readers should use caution when interpreting the compliance cost results as the estimates are based on reported values. Nonetheless, median values were also used to minimise the effect of the underestimated time values by respondents. In addition, the Winsorisation technique

was performed to eliminate outliers for the extreme values.¹¹⁸

9.5 Concluding Remarks

This study has integrated an investigation into the determinants and compliance costs of e-filing usage behaviour for PIT payers in Malaysia. The variables examined for the determinants of the e-filing usage behaviour were adapted from Venkatesh et al. (2003) who combined eight theories to establish the Unified Theory of Acceptance and Use of Technology model. The items for estimating compliance costs were developed from Sandford (1973), the founder of modern tax compliance costs study. The Sandford model has been adapted in many major compliance costs studies (see, for example, Sandford & Hasseldine, 1992; Pope, 1995; Evans et al., 1997).

The final model to test the determinants of e-filing usage behaviour consisted of four independent variables, which were *PU*, *self-ability*, *anxiety* and *external influence*, and a dichotomous dependent variable, which was the actual usage behaviour. Using a logistic regression analysis, the findings indicated *PU* was significantly positively related to the e-filing usage behaviour, while *anxiety* was significantly negatively related to the e-filing usage behaviour.

The estimation of compliance costs indicated that, on average, PIT payers in Malaysia spent about RM633 (AUD217, exchange rate: RM1 = AUD0.3425) on compliance, of which 61 percent was the value of time spent and the rest was monetary expenditure. The overall comparison between e-filing and manual filing compliance costs indicated no statistically significant difference. However, detailed comparison indicated that, at the present time, tax e-filing provides the highest benefits for taxpayers with relatively simple tax affairs; those with more complex returns remain problematical.

The findings suggest that the application of technology to the tax return system and tax policy overall is a continuing challenge. The findings provide valuable insights into the current status of e-filing and compliance costs for PIT payers in Malaysia. It is hoped that the issues related to tax e-filing and compliance costs highlighted in this study will be recognised by Malaysia's policy-makers and that compliance costs will

¹¹⁸ See Footnote 44 in Chapter 4.

be considered as an important element in future tax law reform.

9.6 Suggestions for Future Research

This study highlights many potential areas for future research. First, future research could utilise other approaches for data collection. It is suggested that a qualitative approach or a mixed method approach is taken. The incorporation of a qualitative approach such as face-to-face interviews could look in-depth into the reasons why taxpayers choose not to use the e-filing system. Results from a qualitative approach can enhance the findings from a quantitative approach (McKerchar, 2008).

Secondly, as this study only focused on a cross-sectional analysis of one tax year, a study focusing on trend analysis might also be beneficial for better understanding of the determinants and compliance costs of e-filing. Such trend analysis could identify and separate the effect of start-up costs and regular costs of the e-filing usage behaviour over a few years. The trends in determinants that are important over time to the e-filing acceptance may also differ.

Finally, it is suggested that future studies should focus in detail on *PU* as the main factor to motivate the take-up rate of the e-filing system and on the source of *anxiety* as the main factor that impedes the use of the e-filing system. Such research would be beneficial to identify the items that can increase the *PU* and reduce the *anxiety* towards the e-filing system, and confirm and strengthen the main findings of this thesis.

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Appendices

Appendix A: Selected Prior International Studies on E-Filing Acceptance

Country	Author (Year)	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
Taiwan	Wang (2002)	Individuals	Telephone interview	Modified TAM	SEM-LISREL	Intention	<i>PU</i> , <i>PEOU</i> , perceived credibility and computer self-efficacy	<i>PU</i> , <i>PEOU</i> and perceived credibility are significantly and positively affect the behavioural intention
Taiwan	Wu & Chen (2005)	Individuals	Questionnaire survey (12.9% response rate)	TAM+TPB +Trust	SEM-AMOS	Intention	<i>PU</i> , attitude, perceived behavioural control (<i>PBC</i>), subjective norm, <i>PEOU</i> , trust	Trust indicates important relationships with attitude, <i>PBC</i> and subjective norms. Attitude and <i>PBC</i> are significantly positively influence intention to use e-filing. <i>PU</i> and subjective norms are non-significant variables.
Taiwan	Chu & Wu (2005)	Life insurance clerks who just completed a computer training	Questionnaire survey attached with gifts (84.7% response rate)	TPB	SEM-LISREL	Intention	Attitude, subjective norm, <i>PBC</i> , <i>PU</i> , <i>PEOU</i> , normative belief, self-efficacy and facilitating condition	Attitude, subjective norm and <i>PBC</i> are significant influence of e-filing intention. <i>PU</i> is not significant but <i>PEOU</i> is significant factor that affect attitude. Only secondary normative affect subjective norm. Self-efficacy and facilitating condition are significant factor that influence <i>PBC</i> .
Taiwan	Chang at al. (2005)	Individuals	Questionnaire survey (70.5%)	TAM	SEM-LISREL	Intention	Attitude, <i>PU</i> , <i>PEOU</i> , IS quality, information quality, perceived credibility	Attitude significantly influences behavioural intention but <i>PU</i> is non-significant. <i>PU</i> and <i>PEOU</i> significantly influence attitude.

Country	Author (Year)	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
Taiwan	Hung, Chang & Yu (2006)	Individuals	Web survey	TPB	SEM	Intention	Attitude, subjective norm, <i>PBC</i> , <i>PU</i> , <i>PEOU</i> , perceived risk, trust, personal innovativeness, compatibility, external influence, interpersonal influence, self-efficacy, facilitating condition	Attitude, subjective norm and <i>PBC</i> are significantly influence behavioural intention. <i>PU</i> , <i>PEOU</i> , perceived risk, trust and compatibility significantly influence attitude. External and interpersonal influence significantly influence subjective norm. Self-efficacy and facilitating condition are significantly influence <i>PBC</i> .
Taiwan	Fu et al. (2006)	Individuals	Questionnaire survey- 1.online for e-filers (3.51% response rate), 2.offline CD-ROM for bar code users (2.21% response rate) and 3.mail survey for manual filers (58.2%)	TAM+TPB	SEM	Intention	<i>PEOU</i> , <i>PU</i> , subjective norm, resource facilitating condition, technology facilitating condition, perceived risk and compatibility	For e-filers: <i>PU</i> is the strongest determinant of behavioural intention.
Turkey	Ozgen & Turan (2007)	CPAs	1.Web survey 2.Personal visit	TAM	Multiple regression	Intention	<i>PU</i> , <i>PEOU</i> , self-efficacy (<i>SE</i>),	<i>PU</i> and <i>PEOU</i> are the most important determinants of technology acceptance. <i>SE</i> non-significant because the respondents are experienced user of IT/PC.

Country	Author (Year)	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
USA	Gallant, Culnan & McLoughlin (2007)	Participants were selected from the database of customers who previously purchased a company's tax preparation software	Web survey		Discriminant analysis	Actual Behaviour	Trust/perceived risk, convenience, cost,	Convenience and costs are the main contributor to e-file. <i>PEOU</i> and trust/perceived risk are non-significant.
USA	Carter & Schaupp (2009)	MBA students, masters' level and upper level undergraduate students	Web survey		Multiple linear regression	Intention	Effort expectancy, performance expectancy, social influence, optimism bias, trust of e-filer and e-file experience	Performance expectancy, social influence, trust and optimism bias are significant determinants of e-filing acceptance.
USA	Schaupp et al. (2010)	MBA students, masters' level and upper level undergraduate students	Web survey – an mp3 player was randomly given to encourage participation	UTAUT	SEM-AMOS	Intention	Effort expectancy, performance expectancy, social influence, optimism bias, trust of the e-file system and trust of the internet	Performance expectancy, social influence, perceived risk and optimism bias are statistically significant determinants of e-file intention.

Country	Author (Year)	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
USA	Carter et al. (2011)	Individuals	Questionnaire survey	UTAUT	Multiple regression	Intention	Effort expectancy, performance expectancy, social influence, trust of independent intermediary, web self-efficacy and personal security control	Performance expectancy, effort expectancy, and social influence significantly influence e-filing acceptance. Perceived security control also a significant determinant of e-filing acceptance.
India	Ojha, Sahu & Gupta (2009)	Young professionals	Questionnaire survey	Mixed	Multiple regression	Intention	<i>PEOU</i> , personal innovativeness of IT, relative advantage (<i>PU</i>), e-filing helpline, e-filing service, image, compatibility	Compatibility and personal innovativeness of IT are strong significant determinants of behavioural intention. <i>PEOU</i> also significant. <i>PU</i> significant but smaller influence. Image and e-filing helpline are non-significant factors.
India	Sharma & Yadav (2011)	Individuals	Questionnaire survey	Not mentioned	Multiple regression	Intention	<i>PU</i> , <i>PEOU</i> , perceived credibility, perceived social pressure, perceived cost, perceived risk, computer awareness	<i>PU</i> , <i>PEOU</i> , perceived credibility, and computer awareness significantly influence the e-filing acceptance.

Source: Various studies on tax e-filing acceptance as indicated in the table.

Appendix B: Selected Prior Malaysian Studies on Technology Acceptance

Author (Year)	Scope	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
(Lai et al., 2004)	Tax e-filing	Tax practitioners (Chinese = 87%)	Mail questionnaire	Technology Readiness Index	Multiple regression	Technology readiness	Optimism, innovativeness, discomfort, and insecurity	Optimism and insecurity are statistically significant determinants. This indicates that respondents are highly optimism about new technology but also have a high level of anxiety.
Lai et al. (2005)	Tax e-filing	Tax practitioners	Mail questionnaire	-	Mean analysis	-	Intention , attitude, perception and compliance consideration	Respondents have strong usage intention and positive attitude towards e-filing. However, respondents are uncertain about the security of e-filing.
Ilias et al. (2008)	Tax e-filing	Staffs at three higher learning institutions in Labuan F.T.	Questionnaire survey	TAM	SEM	Intention	Attitude, PU, <i>PEOU</i> , IS quality, information quality, perceived credibility	Attitude is statistically significant determinant of e-filing acceptance. PU and <i>PEOU</i> are found as non-significant determinants.
(Ambali, 2009)	Tax e-filing	PIT payers in Kuala Lumpur and Shah Alam	Survey questionnaire, and unstructured interview	mixed	Ordinary Least Square (OLS)*	User retention	PU, <i>PEOU</i> , facilitating conditions, Perceived risk/security	All independent variables are significant determinants. PU is the most significant determinant.
Lean et al. (2009)	e-government	Individuals in Northern region of Malaysia	Survey questionnaire	TAM + DoI	Multiple regression	Intention	Trust, PU, complexity, relative advantage, image	All variables are significant as direct determinants of intention to use. Trust and PU are positively related to intention and complexity, relative advantage and image are negatively correlated.

Author (Year)	Scope	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
Ramayah et al. (2009)	Tax e-filing	Employees from Kedah, Perak, Johor, Penang, Melacca and Kuala Lumpur (Chinese 77%)	Survey questionnaire using convenient sampling method	TPB	Multiple regression	Intention	Attitude, perceived behavioral control, subjective norms	All variables are statistically significant and are positively related to intention to use. Subjective norms however, have a relatively small significant influence.
Suki & Ramayah	e-government	Employees in Penang	Survey questionnaire	TAM	SEM	Intention	Subjective norms, attitude (PU, <i>PEOU</i> and compatibility), perceived behavioural control (self-efficacy and facilitating condition)	Only attitude and subjective norms are statistically significant, perceived behavioural control is not a statistically significant determinant of intention to use e-filing. PU, <i>PEOU</i> and compatibility are statistically significantly and positively related to of attitude.
Dorasamy et al. (2010)	e-government	PIT payers in Klang Valley	Survey questionnaire	Integration of TAM, DoI and TRI	OLS	Intention	PU, <i>PEOU</i> , perceived readiness and complexity	PU and perceived readiness have a statistically significant impact on the intention to use but <i>PEOU</i> does not have any impact. Complexity has a weak statistically significant at 0.1 level.
Anuar & Othman (2010)	Tax e-payment	Individuals from 1000 selected email addresses	Online survey	TAM	Multiple regression	Intention	PU, <i>PEOU</i> , subjective norms, self-efficacy, perceived credibility and amount of information	PU, subjective norms and self-efficacy are statistically significantly related to the intention to use e-payment. Subjective norms are the strongest determinant. Others are not significant determinants.

Author (Year)	Scope	Respondent	Data Collection Method	Theory	Statistical Technique	Dependent Variable	Independent Variables	Main Findings
Abdul-Manaf et al. (2010)	Tax e-filing	PIT payers in Shah Alam	Survey questionnaire	Combined TAM/TPB	Multiple regression	Intention	PU, <i>PEOU</i> , perceived behavioural control and perceived risk	Only PU and <i>PEOU</i> are statistically significantly influence the e-filing intention.
Hussein et al. (2011)	Tax e-filing	Academic and administrative staffs from five public higher learning institutions in Kuala Lumpur	Survey questionnaire	Mixed (TAM, DoI and others)	Multiple regression	Intention	Social influence, trust in the internet, trust in the government, perceived risk, service quality, compatibility, image, result demonstrability, internal political self-efficacy, external political self-efficacy, <i>PEOU</i> and PU	PU and <i>PEOU</i> are two major statistically significant predictors of e-filing intention, followed by trust in the government, image, compatibility and service quality. Other factors are not statistically significant predictors of e-filing adoption.
Present study	Tax e-filing	PIT payers in Malaysia	Mail survey with the cooperation of the IRBM	Mixed theories based on UTAUT development statements	Logistic regression	Actual behaviour	PU, self-ability, anxiety and external influence	Only PU and anxiety are statistically significant determinants of e-filing usage behaviour. Original <i>PEOU</i> factors were combined in the same group with PU factors by EFA.

Note: *OLS is an approach to multiple regression.

Source: Various studies on e-government and tax e-filing.

Appendix C: Summary of Major International Studies of Taxation Compliance Costs for Personal Income Taxpayers

Author(s) (Year of Publication)	Year(s) under review	Country (Sample)	Tax	1.Methodology 2.Sample frame 3.Usable response 4.Response rate	Major Outcomes
America					
(Slemrod & Sorum, 1984)	1982	USA (Minnesota Residents)	PIT	1.Postal survey 2.2,000 3.653 4.33%	Compliance costs were 5% to 7% of revenue yield; self-employed incur relatively higher costs
Athur D Little Inc (1988)	1983-1985	USA (USA individuals and businesses)	Federal taxes	1.(a) diary study (b) postal survey (c) postal survey 2.(a) 750 individuals (b) 6200 individuals (c) 4,000 businesses 3.(a) 750 (b) 3,831 (c) 1,474 4.(a) 100% (b) 62% (c) 37%	Total estimate taxpayer paperwork burden increased from 4,342m hours in 1983 to 5,427m hours in 1985; record keeping accounted for 50% of this time and form preparation 29%; high degree of correlation between the time spent on record keeping, learning, preparation and sending time associated with filing individual tax returns and the number of line items present on the tax return
Blumenthal & Slemrod (1992)	1989	USA (Minnesota residents)	PIT	1.Postal survey 2. 2,000 3. 826 4. 40%	Upward drift in compliance costs 1989 compared to 1982 survey by Slemrod and Sorum; Tax Reform Act 1986 did not stem this growth
Stavrianos & Greenland (PWC Consulting) (2002)	1998 and 1999	USA (individuals with wage and investment income)	PIT	1. Postal surveys or telephone interviews 2. 11,086 3. 6,366 (2,551 by post and 3,815 by telephone) 4. 57%	The objective is to develop an improved methodology for measuring and modelling the compliance burden. The initial report does not provide any estimates; only details of the micro simulation model used
Canada					
Thompson (1984)	1979	Canada (Ontario PIT payers)	PIT	1.Estimate, based on assumptions applied to provincial tax statistics 2. -4. Not relevant	Compliance costs that would be associated with the introduction of PIT system in Ontario would be roughly C\$150m or C\$42 per taxpayer

Author(s) (Year of Publication)	Year(s) under review	Country (Sample)	Tax	1.Methodology 2.Sample frame 3.Usable response 4.Response rate	Major Outcomes
Vaillancourt (1989)	1986 and 1987	Canada (individuals)	PIT	1. Face-to-face interview with questionnaire 2. 2,040 3. 2,040 4. 100%	Individuals' compliance costs were C\$1.95b, or 2.5% of revenue yield, with the tax complexity of the taxpayer situation being the main determinant.
Erard & Vaillancourt (1992)	1991	Canada (Ontario PIT payers)	PIT	1. Simulation: estimate based on line count of items on individual returns 2.-4. Not relevant	Introducing a PIT system to Ontario would increase net steady state compliance costs for taxpayers, employers and financial institutions by between C\$244.5m and C\$372.5m (between 2% and 3.1% of provincial revenue yield), depending on the model adopted
Plamondon & Zussman (1998)	1996	Canada (business taxpayers)	Federal and provincial business taxes	1. Estimation of compliance costs followed by panel discussion and poll 2.-4. Not relevant	Compliance costs for Canadian business estimated at C\$3.4b, or 0.4% of GDP, 1.5% of revenue yield; a single tax administration would reduce annual compliance costs by between C\$171m and C285m
Europe					
Sandford, Godwin & Hardwick (1989)	1983-1984	UK (personal taxpayers)	PIT	1. Postal survey followed by anonymised matching data from Inland Revenue 2. 4,241 3. 1,776 4. 43%	Compliance costs in 1983-84 were £1.15b, or 3.6% of revenue yield; impact was regressive for the self-employed, though they enjoyed cash flow benefits; the most important factors determining the level of compliance costs were size of income and category of employment
Allers (1994)	1990	The Netherlands	Total Dutch tax-benefit system	1. (a) postal survey for business compliance costs; (b) commercial postal polling for non-business costs; (administrative costs determined by way of documentary analysis) 2. (a) 5,255 (b) not known 3. (a) 1,116 (b) 10,992 4. (a) 21% (b) 44%	Total operating costs of the Dutch tax-benefit system amounted to 15.3b Guilders, or 3% of GDP. The operating costs of the tax system alone were in the region of 11b Guilders, or 2.1% of GDP. Most (60%) operating costs were incurred by private sector compliance costs, with business accounting for about 80% of those costs. Regressively of compliance costs confirmed, and self-employed also typically incurred high compliance costs

Author(s) (Year of Publication)	Year(s) under review	Country (Sample)	Tax	1.Methodology 2.Sample frame 3.Usable response 4.Response rate	Major Outcomes
Malmer (1995)	1983-1993	Sweden (individuals and businesses)	PIT and business taxes	1. (a) Postal survey of individuals 1986, 1989 & 1992 (b) personal interviews of individuals 1983, 1985, 1986, 1987, 1988, 1989, 1992 & 1993 (c) postal survey of individuals and companies 2. (a) 12,000 (b) 1,000 (c) 1,000 3. (a) 8,040 (b) 1,000 (c) 599 4. (a) 67% (b) 100% (c) 60%	Swedish tax reform in 1990 and 1991 resulted in lower operating costs; compliance costs for individuals were reduced, but employers faced higher compliance costs; compliance costs were twice as high as administrative costs; total operating costs of Swedish tax system estimated at SEK14b, or 1% of GDP and 2% of revenue yield
Diaz & Delgado (1995)	1991	Spain (individuals)	PIT	1. Face-to-face interviews with questionnaire 2. 2,500 3.2,355 4.94%	Compliance costs were 3.3% of revenue yield, with time costs comprising 73% and monetary costs 27%
Delgado Lobo, Salinas-Jiminez & Sanz Sanz (2001)	1998 and 1999	Spain (individuals)	PIT	1. face-to-face interviews with questionnaire 2. 2,500 3. 2,388 (1998);2,449 (1999) 4. 96% (1998); 98% (1999)	Compliance costs were 1.8% of revenue yield in 1998 and 1.3% in 1999. Reduction due to PIT reform operative from 1 Jan 1999; psychological costs also fell
Australia					
Pope, Fayle & Duncanson (1990)	1986/87	Australia (registered voters)	PIT	1. Postal survey 2.6,737 3.1,098 4.16%	Compliance costs of PIT were between \$2.8b and \$3.8b, or between 7.9% and 10.8% of revenue yield; they were relatively higher than countries with comparable PIT systems; they were regressive; main determinants were level of income and type of return submitted

Author(s) (Year of Publication)	Year(s) under review	Country (Sample)	Tax	1.Methodology 2.Sample frame 3.Usable response 4.Response rate	Major Outcomes
Evans, Ritchie, Tran-Nam & Walpole (1996 & 1997)		Australia (business and individuals)	All federal taxes	1. Postal survey of (a) business taxpayers and (b) personal taxpayers 2.(a) 7,496 (b) 1,867 3.(a) 2,464 (b) 936 4.(a) 33% (b) 50%	Federal taxpayer compliance costs (after taking into account the value of tax deductibility of certain costs and the value of cash flow benefits) were \$6.2b (1.4% of GDP or 7% of revenue yield); compliance costs were regressive, and larger business actually enjoyed net compliance benefits rather than costs
Other International Studies					
Chattopadhyay & Das-Gupta (2002)	2001	India (individuals)	PIT	1.Postal survey 2.5,435 3.128 4.2%	Compliance costs for individuals were “extraordinarily” high (between 49% and 56% of revenue yield); high for salary earners and “excessive” (7-10 times higher) for non-salaried taxpayers; regressive
Current Studies					
Guyton (2003)	2001	USA (Individual)	US Federal PIT	1. Telephone interview or mail self-administered questionnaire 2. - 3. 6,366 (W&I), 9,081 (self-employed), 415 (paid professionals) 4. 60.5%-W&I, 56.4%-self-employed, 100% paid professional	The study design a new model to estimate compliance burden/compliance costs named Individual Taxpayer Burden Model (ITBM). Using the model, it was estimated that the average burden for federal tax in tax year 2000 was 25.5 hours spent and USD149 money costs per taxpayer. Self employed taxpayers suffered high compliance costs. Those who used tax software and paid preparer spent more time and those with complex tax return also spent high compliance costs.
Klun (2004)	2000	Slovenia (personal taxpayers)	PIT	1. Mail questionnaires were sent out to 50% of sample selected from telephone directory. Other taxpayers especially lower income groups were interviewed in their workplace. 2. 350	Compliance costs estimation only for PIT payers without business income and planning costs. Compliance costs were in U-shaped, high for lower and higher income groups. Compliance costs were 2.5% of PIT revenue.

Author(s) (Year of Publication)	Year(s) under review	Country (Sample)	Tax	1.Methodology 2.Sample frame 3.Usable response 4.Response rate	Major Outcomes
				3. 222 4. 64%	
Moody (2005)	2005	USA	US Federal Income Tax	1. Analysis from IRS reports and data	Tax compliance costs were highly regressive with high percentage for low income group and low percentage for high income group.
Guyton (2005)	tax year 2000	USA (Individuals)	US Federal PIT	1. Same as 2003 study	The number of electronic filing has increased from 12% in 1993 to 54% in 2004. Compliance costs of PIT remain high because taxpayers cannot eliminate major source of compliance costs (e.g. record-keeping, gathering tax materials and tax planning) using a computer. Technology can only reduce half of the complexity. Taxpayer who used tax preparer or tax software is more likely to have more complex tax affairs. Those who choose tax software as compared to tax preparer are those who are highly educated. Those who use tax preparer spent more time but less money than those who prepare the returns themselves. Changes in tax preparation methods are the main contributor to the increment of compliance costs.
Klun (2009)	tax year 2000, 2006 and 2007	Slovenia (personal taxpayers)	PIT	1. Mail questionnaire, web-based questionnaire, telephone interviews for people aged 55 and above 2. 600-mail 3. 439-mail and online 4. Not possible to determine due to responses come from both mail and online questionnaire	Same as 2004, estimation exclude self-employed and planning costs. The total compliance costs reduced by around 73 percent in 2006 as compared to 2000 due to simplification of the administrative procedures for PIT payers and a pre-filled return system.

Author(s) (Year of Publication)	Year(s) under review	Country (Sample)	Tax	1.Methodology 2.Sample frame 3.Usable response 4.Response rate	Major Outcomes
Vaillancourt (2010)	2007	Canada (personal taxpayers)	PIT	<ol style="list-style-type: none"> 1. Structured telephone survey 2. 2,000 Canadian tax filers 3. All 4. 100% 	Compliance costs ranged from 0.26% to 0.37% of GDP. These were not unreasonably high and about the same level as in 1986 in a number of ways. High compliance costs incurred by those with more complex tax affairs and those receiving higher income. They wer self-employed and highly educated taxpayers.

Source: Adapted from (Evans, 2003, pp. 80-92).

Appendix D: Approval Letter from the Inland Revenue Board of Malaysia

	LEMBAGA HASIL DALAM NEGERI MALAYSIA JABATAN KHIDMAT KORPORAT TINGKAT 10, BLOK 9 KOMPLEKS BANGUNAN KERAJAAN JALAN DUTA, PETI SURAT 11833 50758 KUALA LUMPUR	Telefon : 03-6209 1000 Fax : 03-6201 6752/6201 2434 Laman web : http://www.hasil.gov.my
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Ruj. Tuan :
Ruj. Kami : LHDN.01/39/195
Tarikh : 28 May 2009

 Madam Idawati Ibrahim (Curtin Student ID 14188372)
Doctoral Candidate
Tax Policy Research Unit
School of Economics and Finance
Curtin University of Technology
GPO Box U1987
Perth, WA 6845
Australia

Dear Madam,

APPROVAL FOR APPLICATION TO CONDUCT INTERVIEWS ON THE SUBJECT OF E-FILING AT THE INLAND REVENUE BOARD OF MALAYSIA

With reference to the above, thank you for your fax dated 11 May 2009.

2. I wish to convey that, on behalf of the Inland Revenue Board of Malaysia (IRBM) and the Chief Executive Officer/Director General of Inland Revenue, your application to conduct interviews with relevant officers on the subject of e-Filing at the IRBM has been approved. Kindly contact Mr. Marsidi bin Zelika from Tax Research Department.

3. The IRBM is most appreciative of your research on "The operating costs and overall benefits of e-Filing in the Malaysian income tax system" for your PhD thesis and wish you success.

Thank you.

"BERSAMA MEMBANGUN NEGARA"
"BERKHIDMAT UNTUK NEGARA"

Yours faithfully,


(ROZINA BINTI SHAIK OSMAN MERICAN)
Director
Corporate Service Department
Inland Revenue Board of Malaysia
On behalf of the Chief Executive Officer/Director General of Inland Revenue
Inland Revenue Board of Malaysia

HASiL
BERSAMA MEMBANGUN NEGARA

Note: The original title of this thesis has been changed to reflect the content.

Appendix E: Ethics Approval

memorandum



To	Idawati Ibrahim	Office of Research and Development
From	<i>Dr Tom Cronje</i>	Human Research Ethics Committee
Subject	Protocol Approval : E&F/001/2010	
Date	17 June 2012	TELEPHONE 9266 2784
Copy	A/Prof Thorsten Stromback	FACSIMILE 9266 3793
		EMAIL hrec@curtin.edu.au

Thank you for your "Form C Application for Approval of Research with Minimal Risk (Ethical Requirements)" for the project titled "THE OPERATING COSTS AND OVERALL BENEFITS OF ELECTRONIC TAX FILING IN THE MALAYSIAN INCOME TAX SYSTEM". On behalf of the Human Research Ethics Committee I am authorised to inform you that the project is approved.

Approval of this project is for a period of twelve months 25/03/2010 to 25/03/2011.

If at any time during the twelve months changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately. The approval number for your project is **E&F/001/2010**. *Please quote this number in any future correspondence.*

Dr Tom Cronje

Please Note: The following standard statement must be included in the information sheet to participants:
This study has been approved by the Curtin University Human Research Ethics Committee. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784.

Appendix F: Cover Letter



Tarikh: 20 Mei 2010

KAJIAN MENGENAI KOS YANG DITANGGUNG OLEH PEMBAYAR CUKAI INDIVIDU BAGI MEMATUHI KEHENDAK CUKAI PENDAPATAN DI MALAYSIA

Responden yang dihormati

Tujuan utama soal selidik ini adalah untuk mengkaji kos-kos yang terpaksa ditanggung oleh pembayar cukai dalam mematuhi kehendak cukai pendapatan. Anda mungkin telah mendengar atau mempunyai pengalaman sendiri mengisi dan menghantar borang cukai melalui e-filing. Apa pun pengalaman atau pendapat anda adalah sangat penting untuk diketengahkan. Maklumbalas anda sangat diperlukan bagi kejayaan kajian ini dan diharapkan ianya dapat mempengaruhi pihak berkuasa dalam mengubah sistem pencukaian supaya kos-kos yang terpaksa ditanggung oleh pembayar cukai lebih rendah dan adil untuk semua lapisan pembayar cukai.

Anda telah dipilih secara rawak untuk mengambil bahagian di dalam kajian ini. Penyertaan anda adalah sukarela dan anda tidak perlu menjawab semua soalan jika anda tidak menyukainya. Namun kami sangat menghargai jika anda dapat menjawab kesemua soalan. Maklumbalas anda adalah rahsia dan hanya akan dilapor dalam bentuk agregat. Maklum balas secara individu TIDAK akan dikenalpasti. Kajian ini tiada kaitan dengan pihak Lembaga Hasil Dalam Negeri Malaysia. Projek ini telah mendapat kelulusan etika dari Curtin University of Technology. Jika anda mempunyai sebarang persoalan mengenai etika projek ini, bolehlah mengemukakan kepada: *Secretary, Human Research Ethics Committee, Office of Research and Development, Curtin University of Technology, P.O. Box U1987, Perth, WA 6845.*

Soal selidik ini mengandungi lima bahagian dan hanya memerlukan lebih kurang 20 minit untuk dilengkapi. Sila rujuk arahan-arahan yang terletak di bahagian atas borang kaji selidik. Kami amat berterima kasih sekiranya anda dapat mengisi dan mengembalikan soal selidik ini secepat mungkin.

Sekali lagi, terima kasih di atas bantuan anda.

Yang benar

IDAWATI IBRAHIM
Calon PhD
Tel: 019 4254828 atau +61 4 11356777
Fax: +61 8 9266 7694
Email: idawati.ibrahim@postgrad.curtin.edu.au
atau idaibrahim@yahoo.com

PROFESOR JEFF POPE
Penyelia

Appendix G: Questionnaire – Malay Language



Kajian Kos Pematuhan bagi Pembayar Cukai Individu di Malaysia (Maklumbalas anda adalah rahsia)

Nota: - Semua soalan adalah berkaitan tahun taksiran (TT) 2009 melainkan dinyatakan sebaliknya.
- LHDN merujuk kepada Lembaga Hasil Dalam Negeri Malaysia.

SEKSYEN A: MAKLUMAT PERIBADI

Sila tanda satu kotak atau isi maklumat berkaitan seperti diminta bagi setiap soalan.

- Jantina:**
 Lelaki Perempuan
- Status perkahwinan:**
 Bujang Lain-lain
 Berkahwin
- Umur:**
 24 dan ke bawah 55-64
 25-44 65 dan ke atas
 45-54
- Bangsa:**
 Melayu India
 Cina Lain-lain
- Taraf pendidikan tertinggi:**
 Sehingga STPM atau setaraf
 Diploma
 Ijazah atau kelulusan profesional
 Ijazah lanjutan (Master atau PhD)
- Status pekerjaan utama:**
 Bermajikan
 Bekerja sendiri (berniaga)
 Lain-lain, sila nyatakan:
- Jika anda bermajikan, yang manakah menjelaskan kategori pekerjaan anda?**
 Pentadbiran/Pengkeranian
 Penyelia
 Pengurus/Eksekutif/Profesional
 Lain-lain, sila nyatakan:
- Lokasi anda untuk 2009 (kebanyakan bulan):**
 Perlis, Kedah, Penang atau Perak
 Wilayah Persekutuan atau Selangor
 Negeri Sembilan, Melaka atau Johor
 Pahang, Kelantan atau Terengganu
 Lain-lain, sila nyatakan:
- Dengan menggunakan skala di bawah, nyatakan tahap pengetahuan teknologi maklumat (IT) anda:**
 Lemah Biasa Sangat baik
 1 2 3 4 5

SEKSYEN B: PENCUKAIAN

Sila tanda satu kotak atau isi maklumat berkaitan seperti diminta bagi setiap soalan.

- Lingkungan pendapatan kasar tahunan anda bagi 2009:**
 Kurang dari RM 36,000
 RM36,000 - RM69,999
 RM70,000 - RM149,999
 RM150,000 dan lebih
- Lingkungan liabiliti cukai anda bagi TT2009:**
 Tiada
 Kurang dari RM1,000
 RM1,000 - RM2,999
 RM3,000 - RM6,999
 RM7,000 - RM13,999
 RM14,000 - RM27,999
 RM28,000 dan lebih
- Sila nyatakan punca pendapatan anda bagi TT2009 (anda boleh tanda lebih dari satu jika berkenaan):**
 Pendapatan perniagaan
 Peggajian
 Faedah/dividen
 Sewa/royalti
 Lain-lain, sila nyatakan:
- Dengan menggunakan skala di bawah, nyatakan tahap pengetahuan pencukaian anda:**
 Lemah Biasa Sangat baik
 1 2 3 4 5
- Adakah anda menfailkan borang cukai untuk TT 2009?**
 Ya
 Tidak (Terus ke **SEKSYEN D**)
- Kaedah manakah yang anda gunakan untuk menghantar borang cukai 2009 anda?**
 E-filing
 Secara pos (Terus ke **SEKSYEN C**)
 Hantar sendiri ke cawangan LHDN terdekat (Terus ke **SEKSYEN C**)
- Di manakah anda membuat e-filing untuk TT2009?**
 Kaunter LHDN
 Lain-lain, sila nyatakan:

muka surat 1

17. Tahun bilakah pertama kali anda menggunakan sistem e-filing?

- 2005 2006 2007
 2008 2009 2010

SEKSYEN C: KOS PEMATUHAN BAGI TT2009

18. Sila anggarkan masa yang diluankan untuk aktiviti-aktiviti berikut bagi melengkapkan borang nyata cukai 2009 anda:

Aktiviti	Masa digunakan:	
	jam	minit
a. <i>Membaca maklumat cukai</i> sebelum mengisi borang nyata cukai.	<input type="text"/>	<input type="text"/>
b. <i>Menyimpan atau mendapatkan rekod</i> seperti resit dan borang EA/EC.	<input type="text"/>	<input type="text"/>
c. <i>Melihat jadual</i> atau nota penerangan untuk mengetahui tolakan, pelepasan dan rebat yang layak atau kadar cukai.	<input type="text"/>	<input type="text"/>
d. <i>Mendapatkan nasihat</i> dari seseorang) untuk mengisi borang nyata cukai.	<input type="text"/>	<input type="text"/>
e. <i>Menyiapkan borang nyata cukai</i> (mengisi, mengkaji semula dan membuat pembedulan).	<input type="text"/>	<input type="text"/>
f. <i>Menghantar borang nyata cukai</i>	<input type="text"/>	<input type="text"/>
g. <i>Membayar liabiliti cukai</i> (jika anda dikenakan cukai).	<input type="text"/>	<input type="text"/>
h. <i>Menyediakan maklumat untuk ejen pencukaian</i> (jika anda menggunakan ejen pencukaian).	<input type="text"/>	<input type="text"/>
i. <i>Merancang</i> untuk mengurangkan cukai.	<input type="text"/>	<input type="text"/>

19. Jika anda menggunakan pembantu berbayar, berapakah jumlah yuran yang anda bayar pada mana-mana entiti di bawah untuk membantu penyediaan borang nyata cukai anda?

(Jika TIDAK, teruskan ke Soalan 20)

Ejen pencukaian RM

Akauntan atau firma akauntan RM

Lain-lain, sila nyatakan di bawah: RM

ABAIKAN Soalan 20 jika anda **TIDAK** menggunakan e-filing bagi mengisi dan menghantar borang nyata cukai 2009 atau **TIDAK** mempunyai pengalaman mengisi borang secara manual.

20. Sila tandakan satu kotak yang menjelaskan masa yang diambil untuk mengisi borang cukai secara e-filing bagi TT2009 berbanding secara manual. Jika anda tanda "kurang" atau "lebih", sila anggar secara kasar peratusannya.

Aktiviti	Masa untuk e-filing vs. manual	
	<input type="checkbox"/> Kurang _____%	<input type="checkbox"/> Lebih _____%
a. <i>Membaca maklumat cukai</i> sebelum mengisi borang nyata.	<input type="checkbox"/> Lebih kurang sama	<input type="checkbox"/> Lebih kurang sama
b. <i>Menyimpan atau mendapatkan rekod</i> seperti resit dan borang EA/EC.	<input type="checkbox"/> Kurang _____%	<input type="checkbox"/> Lebih _____%
c. <i>Melihat jadual</i> atau nota penerangan untuk mengetahui tolakan, pelepasan dan rebat yang layak atau kadar cukai.	<input type="checkbox"/> Lebih kurang sama	<input type="checkbox"/> Lebih kurang sama
d. <i>Mendapatkan nasihat</i> dari seseorang untuk mengisi borang nyata.	<input type="checkbox"/> Kurang _____%	<input type="checkbox"/> Lebih _____%
e. <i>Menyiapkan borang nyata</i> (mengisi, mengkaji semula dan membuat pembedulan).	<input type="checkbox"/> Lebih kurang sama	<input type="checkbox"/> Lebih kurang sama
f. <i>Menghantar borang nyata cukai</i> .	<input type="checkbox"/> Kurang _____%	<input type="checkbox"/> Lebih _____%
g. <i>Membayar liabiliti cukai</i> (jika anda dikenakan cukai).	<input type="checkbox"/> Lebih kurang sama	<input type="checkbox"/> Lebih kurang sama
h. <i>Menyediakan maklumat untuk ejen pencukaian</i> (jika anda menggunakan ejen pencukaian).	<input type="checkbox"/> Kurang _____%	<input type="checkbox"/> Lebih _____%
i. <i>Merancang</i> untuk mengurangkan cukai.	<input type="checkbox"/> Lebih kurang sama	<input type="checkbox"/> Lebih kurang sama

21. Adakah seseorang membantu anda menyiapkan borang nyata cukai 2009 secara percuma?

- Ya Tidak

Jika 'Ya', sila anggar masa yang diambil oleh beliau:

 jam

22. Jika anda dikenakan cukai untuk TT2009, sila tanda satu kotak untuk menunjukkan kaedah pembayaran dan anggar masa yang diambil atau kos yang terlibat:
(jika anda tidak dikenakan cukai atau belum membayar cukai untuk TT2009, ABAIKAN soalan ini)

Kaedah Bayaran	Kos (RM)	Masa diambil (jam)
<input type="checkbox"/> e-payment/perbankan internet	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Bayaran di bank (spt. CIMB dan Public Bank)	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Lain-lain, sila nyatakan:	<input type="text"/>	<input type="text"/>

23. Secara kasar, sila anggarkan kadar bayaran bagi setiap jam masa anda bekerja?
RM sejam

24. Dalam penyediaan borang nyata 2009, sila anggar perbelanjaan tambahan yang anda lakukan berdasarkan kategori berikut:

(a) **Berkaitan - IT** (spt. perisian dan pakej pencukaian, pembaharuan lesen perisian dan latihan, KECUALI perkakasan komputer):
RM

(b) **TIDAK berkaitan-IT** (spt. belanja perjalanan, pos, telefon dan pembelian buku berkaitan pencukaian):
RM

SEKSYEN D: PANDANGAN TERHADAP E-FILING DAN PRA-ISIAN BORANG NYATA CUKAI

25. Kenyataan berikut bertanyakan pendapat anda mengenai **sistem e-filing*** dan **pra-isian borang nyata****. Dengan menggunakan skala yang disediakan, sila nyatakan pendapat anda kepada setiap kenyataan dengan menandakan kotak yang berkenaan.

Sistem e-filing* merujuk kepada pemfailan borang nyata secara elektronik dengan menggunakan komputer dan sambungan internet.

Pra-isian borang nyata** merujuk kepada borang nyata yang telah diisi oleh LHDN menggunakan maklumat dari pihak ketiga seperti majikan dan institusi kewangan dan pembayar cukai hanya perlu menyemak dan membuat pembetulan jika ada.

Skala	1	2	3	4	5				
	Sangat tidak setuju	Tidak setuju	Neutral	Setuju	Sangat setuju				
(i) Sistem E-filing									
a.	Saya merasakan sistem e-filing berguna untuk menyiapkan cukai pendapatan saya.				<input type="checkbox"/>				
b.	Sistem ini membolehkan saya menyiapkan proses pemfailan borang nyata dengan lebih cepat.				<input type="checkbox"/>				
c.	Jika saya menggunakan sistem ini, saya akan mendapat bayaran balik cukai dengan lebih cepat.				<input type="checkbox"/>				
d.	Dengan menggunakan sistem ini, saya dapat menjimatkan kos.				<input type="checkbox"/>				
e.	Saya merasakan interaksi dengan sistem ini jelas dan mudah difahami.				<input type="checkbox"/>				
f.	Belajar bagaimana untuk menggunakan sistem ini adalah mudah bagi saya.				<input type="checkbox"/>				
g.	Saya dapati / merasakan sistem ini senang digunakan.				<input type="checkbox"/>				
h.	Menggunakan sistem ini adalah idea yang tidak baik.				<input type="checkbox"/>				
i.	Sistem ini membuatkan pengisian borang nyata lebih menarik.				<input type="checkbox"/>				
j.	Saya suka menggunakan sistem ini.				<input type="checkbox"/>				
k.	Orang yang mempengaruhi perilaku saya (seperti rakan sekerja) berpendapat saya perlu menggunakan sistem ini.				<input type="checkbox"/>				
l.	Orang yang penting kepada saya (seperti keluarga) berpendapat saya perlu menggunakan sistem ini.				<input type="checkbox"/>				
m.	Secara am, LHDN membantu penggunaan sistem ini.				<input type="checkbox"/>				
n.	Saya mempunyai sumber-sumber yang perlu untuk menggunakan sistem ini.				<input type="checkbox"/>				

Skala	1 Sangat tidak setuju	2 Tidak setuju	3 Neutral	4 Setuju	5 Sangat setuju
o. Saya mempunyai pengetahuan untuk menggunakan sistem ini.	<input type="checkbox"/>				
p. Sistem ini tidak bersesuaian dengan sistem-sistem lain (seperti sistem perakaunan) yang saya gunakan.	<input type="checkbox"/>				
q. Saya boleh menyiapkan e-filing tanpa bantuan dari sesiapa.	<input type="checkbox"/>				
r. Saya boleh menyiapkan e-filing jika ada seseorang membantu apabila ada masalah.	<input type="checkbox"/>				
s. Saya berasa bimbang untuk menggunakan sistem e-filing.	<input type="checkbox"/>				
t. Saya berasa bimbang akan kehilangan banyak maklumat jika menggunakan e-filing.	<input type="checkbox"/>				
u. Saya ragu-ragu untuk menggunakan sistem ini kerana takut membuat kesalahan yang tidak boleh saya betulkan.	<input type="checkbox"/>				
v. Sistem ini agak menyusahkan saya.	<input type="checkbox"/>				
w. Saya bercadang untuk menggunakan sistem ini pada tahun hadapan.	<input type="checkbox"/>				

Skala	1 Sangat tidak setuju	2 Tidak setuju	3 Neutral	4 Setuju	5 Sangat setuju
(ii) Sistem Pra-isian					
a. LHDN berhak mendapat maklumat pendapatan dan perbelanjaan dari pihak ketiga.	<input type="checkbox"/>				
b. LHDN patut membuat pra-isian borang nyata saya.	<input type="checkbox"/>				
c. Pra-isian borang nyata akan melibatkan masalah keselamatan data.	<input type="checkbox"/>				
d. Pra-isian borang nyata akan membuatkan pembayar cukai menganggap pencukaaian kurang penting.	<input type="checkbox"/>				
e. Pra-isian borang nyata akan membantu menyelesaikan masalah kesukaran dalam pencukaaian.	<input type="checkbox"/>				
f. Pra-isian borang nyata akan mengurangkan beban dan kos pemfailan borang nyata.	<input type="checkbox"/>				
g. Tahap kefahaman saya mengenai pra-isian borang nyata adalah sangat tinggi.	<input type="checkbox"/>				
h. Secara keseluruhan, saya suka konsep pra-isian borang nyata.	<input type="checkbox"/>				

SEKSYEN E: KOMEN DAN CADANGAN

Jika anda mempunyai komen atau cadangan mengenai **e-filing**, **pra-isian** atau **cukai pendapatan**, sila nyatakan di bawah:

Terima kasih kerana sudi meluangkan masa untuk mengisi soal selidik ini. Bantuan anda sangat dihargai.

Sila kembalikan soal selidik ini dengan menggunakan sampul berbayar yang disediakan kepada:

Idawati Ibrahim
Kolej Perniagaan, Bangunan Perakaunan
Universiti Utara Malaysia, 06010 Sintok
Kedah Darulaman

Appendix H: Questionnaire – English



A Survey of the Costs Incurred by Personal Taxpayers in Malaysia

All responses will be kept strictly confidential

Note: - All questions related to year of assessment (YA) 2009 unless otherwise stated.
- IRBM refers to the Inland Revenue Board of Malaysia.

SECTION A: PERSONAL DETAILS

Please tick one box; or fill in the appropriate details as requested.

1. **Gender:**
 Male Female
2. **Marital status:**
 Single Married
 Other
3. **Age:**
 24 and under 55-64
 25-44 65 and over
 45-54
4. **Ethnicity:**
 Malay Indian
 Chinese Others
5. **Highest education level:**
 Up to STPM
 Diploma
 Graduate or professional qualification
 Postgraduate degree
6. **Main employment status:**
 Employed
 Self-employed
 Other, please describe:
7. **If you are employed, which of the following best describes your work?**
 Administrative/Clerical
 Supervisor
 Manager/Executive/Professional
 Other, please describe:
8. **Your location in 2009 (most of the year):**
 Perlis, Kedah, Penang or Perak
 Wilayah Persekutuan or Selangor
 Negeri Sembilan, Melaka or Johor
 Pahang, Kelantan or Terengganu
 Other, please state:
9. **Using the scale below, please tick a box to indicate your level of information technology (IT) knowledge:**

Poor	Average	Excellent
1 <input type="checkbox"/>	2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/>	5 <input type="checkbox"/>

SECTION B: TAXATION

Please tick one box; or fill in the appropriate details as requested.

10. **Please tick your range of annual gross income for YA 2009:**
 Less than RM 36,000
 RM36,000 - RM69,999
 RM70,000 - RM149,999
 RM150,000 and more
11. **Please tick your range of tax liability for YA 2009:**
 No tax liability
 Less than RM1,000
 RM1,000 - RM2,999
 RM3,000 - RM6,999
 RM7,000 - RM13,999
 RM14,000 - RM27,999
 RM28,000 and more
12. **Please indicate below the source(s) of your YA 2009 income (you may tick more than one box):**
 Business income
 Wages and salaries
 Interest/dividends
 Rent/royalties
 Other, please describe:
13. **Using the scale below, please tick a box to indicate your level of income tax knowledge:**

Poor	Average	Excellent
1 <input type="checkbox"/>	2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/>	5 <input type="checkbox"/>
14. **Did you file an income tax return for YA 2009?**
 Yes
 No (*Proceed to SECTION D*)
15. **Which filing method did you use to submit your 2009 return?**
 E-filing
 Mail (*proceed to SECTION C*)
 By hand to the nearest IRBM's branch (*proceed to SECTION C*)
16. **Where did you do your tax e-filing for YA 2009?**
 The IRBM's counter
 Other, please specify:

17. When was the first year you used the e-filing system?

- Prior to 2007, please state:
 2007
 2008
 2009

SECTION C: COMPLIANCE COSTS FOR YA2009

18. Please estimate the time that you spent for the following activities for your 2009 income tax return:

Activity	Time Spent:	
	hours	minutes
a. Learning about tax before you filled in your 2009 income tax return.	<input type="text"/>	<input type="text"/>
b. Keeping or obtaining records such as receipts and EA/EC forms.	<input type="text"/>	<input type="text"/>
c. Looking at tables or notes to find your eligible deductions, reliefs and rebates or your tax rates.	<input type="text"/>	<input type="text"/>
d. Preparing (gathering information and getting advice from someone else) to fill in your income tax return.	<input type="text"/>	<input type="text"/>
e. Completing your return (filling in, revising and making corrections).	<input type="text"/>	<input type="text"/>
f. Submitting or lodging your final income tax return.	<input type="text"/>	<input type="text"/>
g. Paying your 2009 tax liability (if you were taxable).	<input type="text"/>	<input type="text"/>
h. Supplying information to a tax agent (If you used a tax agent).	<input type="text"/>	<input type="text"/>
i. Planning your financial affairs in order to minimise taxes.	<input type="text"/>	<input type="text"/>

19. If you used paid assistant, how much in fees did you pay to any of the following for help, advice or return preparation? (If NOT, proceed to Q20)

- A tax agent RM
 An accountant or accounting firm RM
 Other, please specify below: RM

SKIP Q20 if you DID NOT use e-filing for 2009 return or DID NOT have manual paper filing experience.

20. Please tick one box to describe your time for 2009 electronic filing system as compared to your manual filing experience. If you answer "less" or "more", please estimate roughly the percentage.

Activity	Time Spent for E-Filing vs. Manual Filing
a. Learning about tax before you filled in your 2009 income tax return.	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
b. Keeping or obtaining records such as receipts and EA/EC forms.	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
c. Looking at tables or notes to find your eligible deductions, reliefs and rebates or your tax rates.	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
d. Preparing (gathering information and getting advice from someone else) to fill in your income tax return.	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
e. Completing your 2009 return (filling in, revising and making corrections).	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
f. Submitting or lodging your final income tax return for 2009.	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
g. Paying your 2009 tax liability (if you were taxable).	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
h. Supplying information to a tax agent (If you used a tax agent).	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same
i. Planning your financial affairs in order to minimise taxes.	<input type="checkbox"/> less by ____% <input type="checkbox"/> more by ____% <input type="checkbox"/> about the same

21. Did someone help you with your 2009 income tax return whom you did not pay?

- Yes No

If yes, please estimate how much time that person spent helping you:

hours

22. If you are taxable for 2009, please tick one box to indicate your mode of payment and please estimate approximately the time and/or costs that you incurred (If you did not have to pay anything, or you still do not make your payment, SKIP this question):

Method	Cost (RM)	Time taken (hours)
<input type="checkbox"/> e-payment/internet banking	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Payment at authorised banks (e.g. CIMB and Public Bank)	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Other, please specify:	<input type="text"/>	<input type="text"/>

23. Did you spend time responding to the IRBM in 2009 on previous tax year matters?

Yes No

If 'Yes', please estimate the time spent:

hours

24. Approximately how much per hour was your time to complete income tax return worth to you?

RM per hour

25. In preparing your 2009 tax return, please estimate any additional expenditure that you made in order to prepare and file your tax return which was:

(a) *IT-related* (e.g. tax software and packages, licence renewal and software training, EXCLUDE computer hardware):

RM

(b) *NOT IT-related* (e.g. travelling expenditure, postage, telephone calls and purchasing books related to tax):

RM

SECTION D: PERCEPTIONS ON E-FILING AND PRE-FILING OF INCOME TAX RETURN

26. The following statements ask your opinion regarding e-filing system* and pre-filing of income tax return**. Using the following scale, please indicate your opinion to each statement by ticking an appropriate box.

E-filing system* refers to electronic filing of your income tax form using computer and Internet connection.

Scale	1	2	3	4	5
	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree
(i) E-filing system					
a. I find/would find the e-filing system useful to complete my income tax.	<input type="checkbox"/>				
b. Using the system enables me to accomplish my filing more quickly.	<input type="checkbox"/>				
c. If I use the system, I will get my tax refund more quickly.	<input type="checkbox"/>				
d. Using the system would save my costs of filing my tax return.	<input type="checkbox"/>				
e. My interaction with the system is/would be clear and understandable.	<input type="checkbox"/>				
f. Learning to operate the system is easy for me.	<input type="checkbox"/>				
g. I find/would find the system easy to use.	<input type="checkbox"/>				
h. Using the system is a bad idea.	<input type="checkbox"/>				
i. The system makes filing income tax more interesting.	<input type="checkbox"/>				
j. I like filing my return with the system.	<input type="checkbox"/>				
k. People who influence my behaviour (e.g. my colleagues) think that I should use the system.	<input type="checkbox"/>				
l. People who are important to me (e.g. my family) think that I should use the system.	<input type="checkbox"/>				
m. In general, IRBM has supported the use of the system	<input type="checkbox"/>				
n. I have the resources necessary to use the system.	<input type="checkbox"/>				
o. I have the knowledge necessary to use the system.	<input type="checkbox"/>				
p. The system is not compatible with other systems I use.	<input type="checkbox"/>				
q. I could complete my tax filing using the system without anybody telling me what to do as I go.	<input type="checkbox"/>				

Scale	Strongly disagree 1	Slightly disagree 2	Neutral 3	Slightly agree 4	Strongly agree 5
r. I could complete my tax filing using the system if I could call someone for help if I got stuck.	<input type="checkbox"/>				
s. I feel apprehensive about using an e-filing system.	<input type="checkbox"/>				
t. It scares me to think I could lose a lot of information using the system.	<input type="checkbox"/>				
u. I hesitate to use the system for fear of making mistakes I cannot correct.	<input type="checkbox"/>				
v. The system is somewhat intimidating to me.	<input type="checkbox"/>				
w. I intend to use the system in the next tax filing season.	<input type="checkbox"/>				

Pre-filing of income tax return** refers to returns that are pre-prepared or pre-populated by the tax administrator using third-party information such as employer and financial institutions.

Scale	Strongly disagree 1	Slightly disagree 2	Neutral 3	Slightly agree 4	Strongly agree 5
(ii) Pre-filing system					
a. The IRBM should have access to incomes and expenses information from a third party.	<input type="checkbox"/>				
b. The IRBM should pre-fill my income tax return.	<input type="checkbox"/>				
c. Pre-filing would involve tax data security problems.	<input type="checkbox"/>				
d. Pre-filing will make taxation a lower priority to taxpayer.	<input type="checkbox"/>				
e. Pre-filing will help solve the problem of tax complexity.	<input type="checkbox"/>				
f. Pre-filing will reduce the burden and costs of filing an income tax return.	<input type="checkbox"/>				
g. I understand well the tax pre-filing.	<input type="checkbox"/>				
h. Overall, I like the idea of pre-filing of income tax return.	<input type="checkbox"/>				

SECTION E: COMMENTS AND SUGGESTIONS

If you have any further comments or suggestions regarding **e-filing, pre-filing or income tax**, please specify below:

Thank you very much indeed for taking the time to complete this questionnaire. It is most appreciated.

Please return your completed questionnaire using the enclosed self-addressed and postage-paid envelope to:

Idawati Ibrahim
College of Business, Accounting Building
Universiti Utara Malaysia, 06010 Sintok
Kedah Darulaman

Appendix I: Postcard Reminder



KAJIAN KOS PEMATUHAN BAGI PEMBAYAR CUKAI INDIVIDU DI MALAYSIA

Responden yang dihormati

Baru-baru ini saya telah menghantar satu soal selidik untuk mengkaji kos yang terpaksa ditanggung oleh pembayar cukai individu. Kajian ini amat penting dalam usaha mengurangkan beban pembayar cukai.

Jika tuan/puan telah mengembalikan soal selidik tersebut, sekalung terima kasih diucapkan. Jika tuan/puan belum mengisi soal selidik tersebut, saya memohon jasa baik tuan/puan untuk mengisi dan mengembalikannya kepada saya secepat mungkin. Jika tuan/puan memerlukan salinan tambahan soal selidik tersebut, bolehlah menghubungi saya seperti di bawah.

Sekian, terima kasih tidak terhingga di atas pertolongan tuan/puan.

Idawati Ibrahim
Pelajar PhD, Curtin University of Technology, Perth
Email: idawati.ibrahim@postgrad.curtin.edu.au
Telefon: 019-4254828

Appendix J: Correlation Matrix before Deletion and Combination of Items

	useful	quick	refund	savecost	clear	ezlearn	ezuse	badidea	intrsting	like	pinflnce	pimprnt	IRBM	resource	knowldg	cmpatbl	nohelp	help	nervous	scare	hesitate	intmdte
useful	1.000	0.740	0.415	0.592	0.691	0.604	0.630	-0.399	0.531	0.702	0.378	0.441	0.528	0.464	0.548	-0.052	0.461	-0.025	-0.464	-0.381	-0.335	-0.490
quick	0.740	1.000	0.410	0.560	0.659	0.559	0.655	-0.349	0.547	0.688	0.321	0.385	0.488	0.422	0.480	-0.020	0.384	0.105	-0.407	-0.343	-0.322	-0.511
refund	0.415	0.410	1.000	0.474	0.527	0.397	0.447	-0.265	0.520	0.516	0.393	0.387	0.448	0.401	0.326	-0.157	0.279	0.105	-0.315	-0.352	-0.345	-0.465
savecost	0.592	0.560	0.474	1.000	0.613	0.558	0.553	-0.332	0.495	0.604	0.333	0.441	0.516	0.432	0.438	-0.099	0.334	0.166	-0.376	-0.346	-0.311	-0.445
clear	0.691	0.659	0.527	0.613	1.000	0.724	0.741	-0.394	0.592	0.734	0.376	0.501	0.538	0.547	0.539	-0.092	0.454	0.086	-0.498	-0.451	-0.393	-0.583
ezlearn	0.604	0.559	0.397	0.558	0.724	1.000	0.825	-0.357	0.528	0.730	0.357	0.431	0.542	0.539	0.673	-0.140	0.495	0.058	-0.597	-0.497	-0.525	-0.600
ezuse	0.630	0.655	0.447	0.553	0.741	0.825	1.000	-0.412	0.575	0.767	0.375	0.483	0.587	0.515	0.608	-0.079	0.488	0.177	-0.549	-0.489	-0.445	-0.598
badidea	-0.399	-0.349	-0.265	-0.332	-0.394	-0.357	-0.412	1.000	-0.275	-0.482	-0.151	-0.245	-0.331	-0.337	-0.352	0.136	-0.256	-0.016	0.369	0.379	0.322	0.475
intrsting	0.531	0.547	0.520	0.495	0.592	0.528	0.575	-0.275	1.000	0.686	0.470	0.555	0.476	0.535	0.481	-0.099	0.339	0.029	-0.414	-0.406	-0.417	-0.552
like	0.702	0.688	0.516	0.604	0.734	0.730	0.767	-0.482	0.686	1.000	0.463	0.599	0.572	0.657	0.653	-0.120	0.534	0.085	-0.564	-0.508	-0.509	-0.679
pinflnce	0.378	0.321	0.393	0.333	0.376	0.357	0.375	-0.151	0.470	0.463	1.000	0.612	0.409	0.398	0.316	-0.052	0.220	0.126	-0.227	-0.268	-0.210	-0.290
pimprnt	0.441	0.385	0.387	0.441	0.501	0.431	0.483	-0.245	0.555	0.599	0.612	1.000	0.448	0.483	0.376	0.052	0.275	0.206	-0.365	-0.343	-0.336	-0.433
IRBM	0.528	0.488	0.448	0.516	0.538	0.542	0.587	-0.331	0.476	0.572	0.409	0.448	1.000	0.512	0.438	-0.117	0.311	0.181	-0.379	-0.358	-0.356	-0.373
resource	0.464	0.422	0.401	0.432	0.547	0.539	0.515	-0.337	0.535	0.657	0.398	0.483	0.512	1.000	0.693	-0.063	0.544	0.104	-0.452	-0.398	-0.507	-0.484
knowldg	0.548	0.480	0.326	0.438	0.539	0.673	0.608	-0.352	0.481	0.653	0.316	0.376	0.438	0.693	1.000	-0.137	0.600	0.020	-0.537	-0.461	-0.500	-0.493
cmpatbl	-0.052	-0.020	-0.157	-0.099	-0.092	-0.140	-0.079	0.136	-0.099	-0.120	-0.052	0.052	-0.117	-0.063	-0.137	1.000	-0.043	0.005	0.144	0.186	0.211	0.219
nohelp	0.461	0.384	0.279	0.334	0.454	0.495	0.488	-0.256	0.339	0.534	0.220	0.275	0.311	0.544	0.600	-0.043	1.000	-0.123	-0.474	-0.334	-0.330	-0.385
help	-0.025	0.105	0.105	0.166	0.086	0.058	0.177	-0.016	0.029	0.085	0.126	0.206	0.181	0.104	0.020	0.005	-0.123	1.000	0.032	0.001	0.018	-0.041
nervous	-0.464	-0.407	-0.315	-0.376	-0.498	-0.597	-0.549	0.369	-0.414	-0.564	-0.227	-0.365	-0.379	-0.452	-0.537	0.144	-0.474	0.032	1.000	0.805	0.744	0.648
scare	-0.381	-0.343	-0.352	-0.346	-0.451	-0.497	-0.489	0.379	-0.406	-0.508	-0.268	-0.343	-0.358	-0.398	-0.461	0.186	-0.334	0.001	0.805	1.000	0.766	0.640
hesitate	-0.335	-0.322	-0.345	-0.311	-0.393	-0.525	-0.445	0.322	-0.417	-0.509	-0.210	-0.336	-0.356	-0.507	-0.500	0.211	-0.330	0.018	0.744	0.766	1.000	0.718
intmdte	-0.490	-0.511	-0.465	-0.445	-0.583	-0.600	-0.598	0.475	-0.552	-0.679	-0.290	-0.433	-0.373	-0.484	-0.493	0.219	-0.385	-0.041	0.648	0.640	0.718	1.000

Appendix K: Correlation Matrix after Deletion and Combination of Items

	useful	quick	refund	savecost	clear	intrsting	like	pinflnce	pimprtnt	IRBM	resource	knowldg	nohelp	hesitate*	initmdte*	ezlearn_use	Scar_nerv*
useful	1.000	0.740	0.415	0.592	0.691	0.531	0.702	0.378	0.441	0.528	0.464	0.548	0.461	0.335	0.490	0.646	0.444
quick	0.740	1.000	0.410	0.560	0.659	0.547	0.688	0.321	0.385	0.488	0.422	0.480	0.384	0.322	0.511	0.635	0.395
refund	0.415	0.410	1.000	0.474	0.527	0.520	0.516	0.393	0.387	0.448	0.401	0.326	0.279	0.345	0.465	0.442	0.351
savecost	0.592	0.560	0.474	1.000	0.613	0.495	0.604	0.333	0.441	0.516	0.432	0.438	0.334	0.311	0.445	0.582	0.380
clear	0.691	0.659	0.527	0.613	1.000	0.592	0.734	0.376	0.501	0.538	0.547	0.539	0.454	0.393	0.583	0.766	0.500
interesting	0.531	0.547	0.520	0.495	0.592	1.000	0.686	0.470	0.555	0.476	0.535	0.481	0.339	0.417	0.552	0.577	0.432
like	0.702	0.688	0.516	0.604	0.734	0.686	1.000	0.463	0.599	0.572	0.657	0.653	0.534	0.509	0.679	0.783	0.565
pinflnce	0.378	0.321	0.393	0.333	0.376	0.470	0.463	1.000	0.612	0.409	0.398	0.316	0.220	0.210	0.290	0.383	0.261
pimprtnt	0.441	0.385	0.387	0.441	0.501	0.555	0.599	0.612	1.000	0.448	0.483	0.376	0.275	0.336	0.433	0.478	0.373
IRBM	0.528	0.488	0.448	0.516	0.538	0.476	0.572	0.409	0.448	1.000	0.512	0.438	0.311	0.356	0.373	0.591	0.388
resource	0.464	0.422	0.401	0.432	0.547	0.535	0.657	0.398	0.483	0.512	1.000	0.693	0.544	0.507	0.484	0.552	0.448
knowldg	0.548	0.480	0.326	0.438	0.539	0.481	0.653	0.316	0.376	0.438	0.693	1.000	0.600	0.500	0.493	0.671	0.525
nohelp	0.461	0.384	0.279	0.334	0.454	0.339	0.534	0.220	0.275	0.311	0.544	0.600	1.000	0.330	0.385	0.515	0.425
hesitate*	0.335	0.322	0.345	0.311	0.393	0.417	0.509	0.210	0.336	0.356	0.507	0.500	0.330	1.000	0.718	0.508	0.795
intmidte*	0.490	0.511	0.465	0.445	0.583	0.552	0.679	0.290	0.433	0.373	0.484	0.493	0.385	0.718	1.000	0.627	0.678
ezlearn_use*	0.646	0.635	0.442	0.582	0.766	0.577	0.783	0.383	0.478	0.591	0.552	0.671	0.515	0.508	0.627	1.000	0.587
Scar_nerv*	0.444	0.395	0.351	0.380	0.500	0.432	0.565	0.261	0.373	0.388	0.448	0.525	0.425	0.795	0.678	0.587	1.000

Note: *Items were reverse-coded for positive values.

Appendix L: Non-Parametric Results before Removing Respondent who Used a Tax Professional

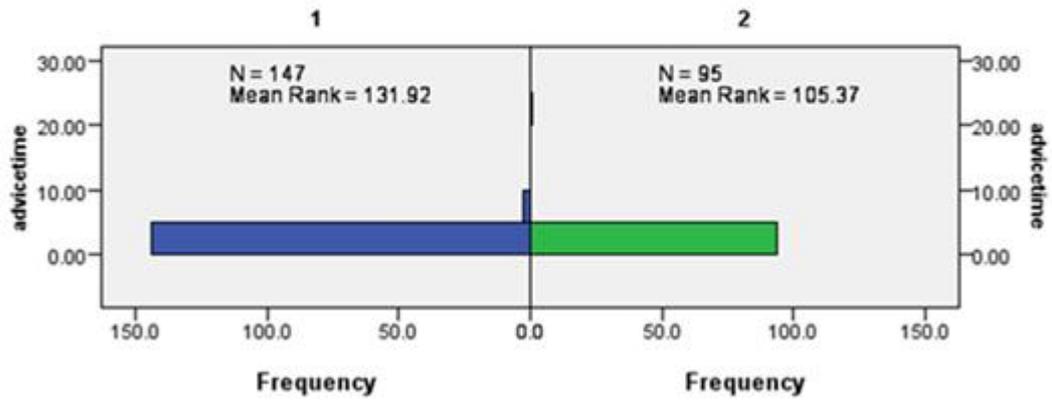
Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of learntime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.738	Retain the null hypothesis.
2	The distribution of keeptime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.299	Retain the null hypothesis.
3	The distribution of looktime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.942	Retain the null hypothesis.
4	The distribution of advicetime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.003	Reject the null hypothesis.
5	The distribution of completetime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.639	Retain the null hypothesis.
6	The distribution of submittime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.168	Retain the null hypothesis.
7	The distribution of paytime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.417	Retain the null hypothesis.
8	The distribution of supplytime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.351	Retain the null hypothesis.
9	The distribution of plantime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.139	Retain the null hypothesis.
10	The distribution of helptime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.024	Reject the null hypothesis.
11	The distribution of TotalTime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.412	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is 0.05.

Independent-Samples Mann-Whitney U Test

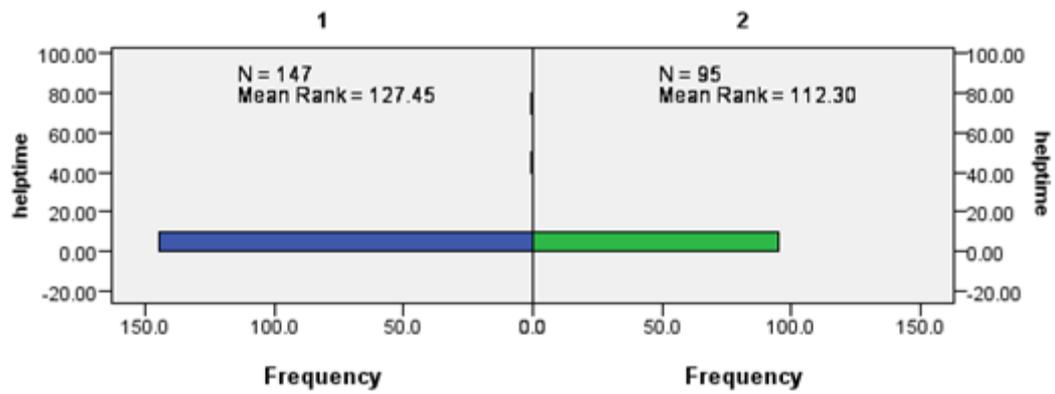
File methods



Total N	242
Mann-Whitney U	5,450.500
Wilcoxon W	10,010.500
Test Statistic	5,450.500
Standard Error	513.764
Standardized Test Statistic	-2.982
Asymptotic Sig. (2-sided test)	0.003

Independent-Samples Mann-Whitney U Test

File methods



Total N	242
Mann-Whitney U	6,108.500
Wilcoxon W	10,668.500
Test Statistic	6,108.500
Standard Error	387.358
Standardized Test Statistic	-2.256
Asymptotic Sig. (2-sided test)	0.024

Appendix M: Non-Parametric Results after Removing Respondents who Used a Tax Professional

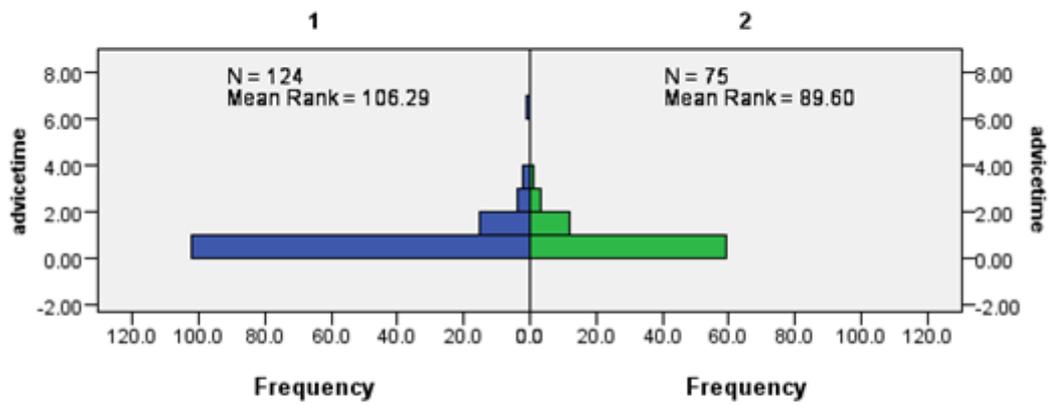
Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of learntime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.923	Retain the null hypothesis.
2	The distribution of keeptime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.713	Retain the null hypothesis.
3	The distribution of looktime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.485	Retain the null hypothesis.
4	The distribution of advicetime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.040	Reject the null hypothesis.
5	The distribution of completetime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.328	Retain the null hypothesis.
6	The distribution of submittime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.010	Reject the null hypothesis.
7	The distribution of paytime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.283	Retain the null hypothesis.
8	The distribution of supplytime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	1.000	Retain the null hypothesis.
9	The distribution of plantime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.060	Retain the null hypothesis.
10	The distribution of helptime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.015	Reject the null hypothesis.
11	The distribution of TotalTime is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.698	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is 0.05.

Independent-Samples Mann-Whitney U Test

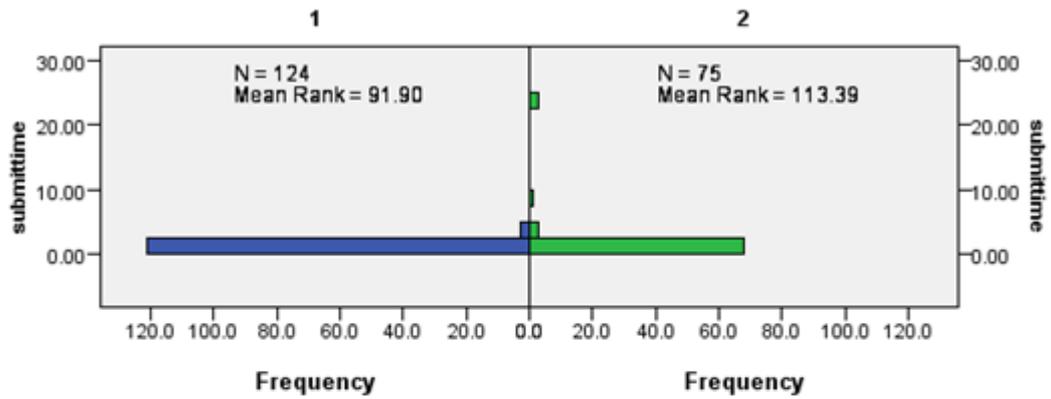
File methods



Total N	199
Mann-Whitney U	3,870.000
Wilcoxon W	6,720.000
Test Statistic	3,870.000
Standard Error	379.003
Standardized Test Statistic	-2.058
Asymptotic Sig. (2-sided test)	0.040

Independent-Samples Mann-Whitney U Test

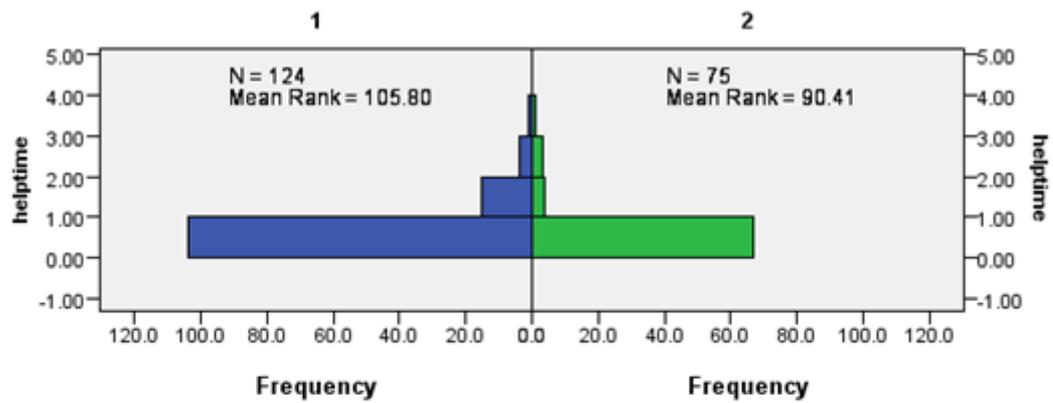
File methods



Total N	199
Mann-Whitney U	5,654.500
Wilcoxon W	8,504.500
Test Statistic	5,654.500
Standard Error	390.318
Standardized Test Statistic	2.574
Asymptotic Sig. (2-sided test)	0.010

Independent-Samples Mann-Whitney U Test

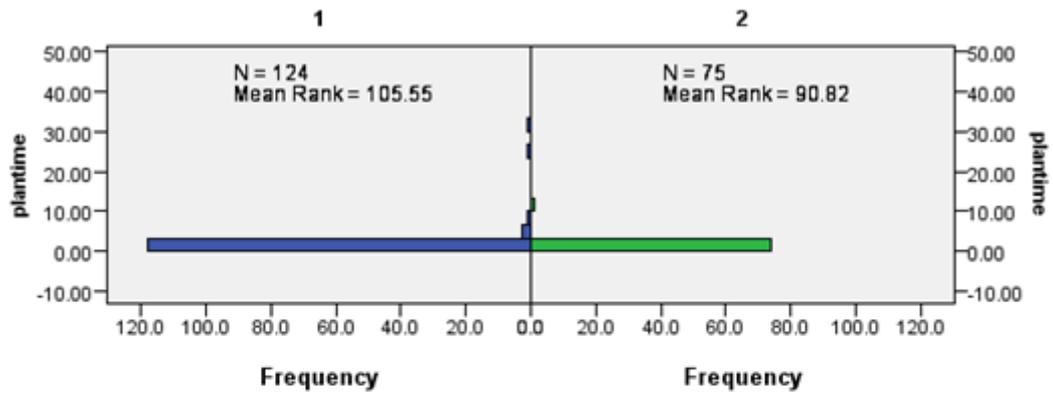
File methods



Total N	199
Mann-Whitney U	3,930.500
Wilcoxon W	6,780.500
Test Statistic	3,930.500
Standard Error	295.213
Standardized Test Statistic	-2.437
Asymptotic Sig. (2-sided test)	0.015

Independent-Samples Mann-Whitney U Test

File methods



Total N	199
Mann-Whitney U	3,961.500
Wilcoxon W	6,811.500
Test Statistic	3,961.500
Standard Error	366.212
Standardized Test Statistic	-1.880
Asymptotic Sig. (2-sided test)	0.060

Appendix N: Mann-Whitney U Test Results on Monetary Costs Components and Total Compliance Costs

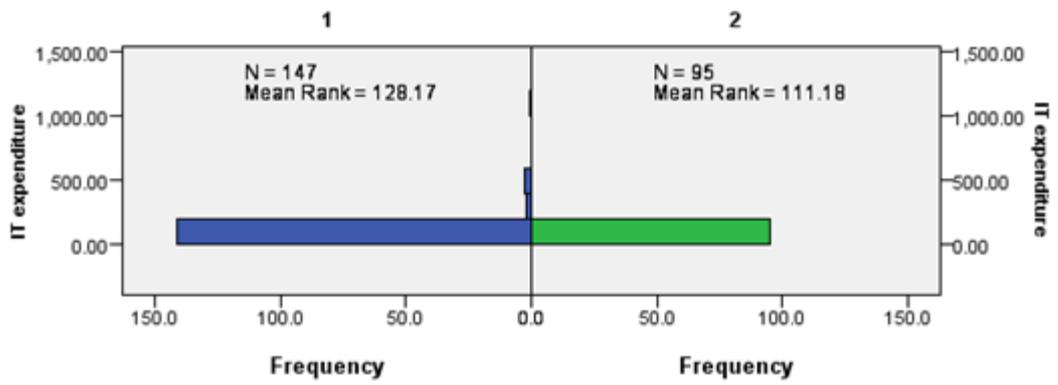
Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Tax professional fees is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.364	Retain the null hypothesis.
2	The distribution of IT expenditure is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.003	Reject the null hypothesis.
3	The distribution of Non-IT expenditure is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.181	Retain the null hypothesis.
4	The distribution of Total Money Costs is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.375	Retain the null hypothesis.
5	The distribution of Total CC using mean is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.830	Retain the null hypothesis.
6	The distribution of TCC_Author is the same across categories of File methods.	Independent-Samples Mann-Whitney U Test	0.497	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is 0.05.

Independent-Samples Mann-Whitney U Test

File methods



Total N	242
Mann-Whitney U	6,002.000
Wilcoxon W	10,562.000
Test Statistic	6,002.000
Standard Error	329.153
Standardized Test Statistic	-2.979
Asymptotic Sig. (2-sided test)	0.003

Appendix O: Comparison of Average Compliance Time between E-Filing and Manual Filing

	Learntime		Keiptime		Looktime		Advicetime		Compleatetime		Submittime		Paytime		Supplytime		Plantime		Helptime		Total Time	
	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual	E-filing	Manual
Overall	0.83	1.22	2.18	2.43	0.64	1.13	0.54	0.56	1.01	1.79	0.42	1.46	0.81	1.79	1.20	1.20	1.16	1.07	1.04	0.21	9.84	13.24
Gender:																						
Male	0.66	1.52	1.84	1.92	0.57	1.45	0.53*	0.28*	1.03	1.03	0.43	1.59	0.81	2.48	1.92	1.92	0.88	1.27	1.46	0.21	10.12	13.35
Female	1.10	0.79	2.75	3.17	0.75	0.67	0.57	0.98	0.99	2.89	0.40	1.28	0.81	0.79	0.02*	0.02*	1.62	0.77	0.36*	0.21*	9.38	13.07
Marital Status:																						
Single	1.56	0.53	2.18	0.71	0.85	0.39	0.77	0.09	1.01	0.95	0.44	0.33	0.49	0.28	0.25	0.25	1.73	0.23	0.16	0.00	9.43	3.57
Married	0.66	1.31	2.19	2.68	0.59	1.22	0.50*	0.62*	1.01	1.91	0.42	1.61	0.90	1.98	1.43	1.43	1.03	1.19	1.26*	0.24*	10.01	14.55
Other	1.0	0.83	3.0	0.83	0.50	0.83	0.00	0.33	1.50	1.00	0.50	0.83	0.00	1.00	0.00	0.00	2.00	0.19	0.00	0.00	8.50	5.86
Age:																						
24 and under	0.57	-	6.25	-	0.58	-	0.75	-	1.75	-	0.39	-	0.37	-	0.25	0.25	1.25	-	0.33	-	12.31	-
25-44	0.98	0.63	2.67	3.70	0.67	0.60	0.65	0.44	1.16	2.64	0.45	3.00	1.21	1.94	2.18	2.18	1.88	0.38	1.97	0.19	13.83	14.15
45-54	0.65	1.77	1.31	2.36	0.60	1.79	0.50*	0.27*	0.78	1.31	0.40	0.56	0.46	2.12	0.41	0.41	0.53	1.76	0.24	0.16	5.87	14.01
55-64	1.04	0.79	2.51	0.53	0.82	0.53	0.29	0.22	1.04	1.06	0.41	0.36	0.46	0.08	0.13	0.13	0.47	0.26	0.08	0.13	7.26	4.07
65 and over	0.42	1.30	0.83	0.59	0.19	0.60	0.14	3.13	1.14	2.11	0.44	1.83	0.67	1.95	0.00	0.00	0.06	1.27	0.50	0.69	4.39	19.15
Employment Status:																						
Employed	0.89	1.01	2.45	2.89	0.69	0.71	0.49*	0.35*	0.93	1.74	0.43	1.74	0.86	1.09	0.23	0.23	1.31	0.33	0.26*	0.15*	8.53	10.17
Self-Employed	0.64	1.97	1.28	1.40	0.48	2.47	0.81*	1.22*	1.31	2.03	0.39	0.81	0.63	4.07	5.00	5.00	0.71	3.35	4.07	0.22	15.31	23.45
Other	0.42	0.67	0.94	1.00	0.25	0.55	0.11	0.50	1.25	1.40	0.53	0.80	0.67	0.70	0.00	0.00	0.00	0.40	0.33	1.00	4.5	7.32
Ethnicity:																						
Malays	0.61	0.48	1.74	2.06	0.51	0.52	0.41*	0.22*	0.99	1.43	0.37	1.05	0.98	0.32	1.03	1.03	1.10	0.24	0.88	0.32	8.63	6.98
Chinese	1.29	1.83	2.59	3.27	0.81	1.74	0.76*	0.88*	1.09	2.31	0.49	1.44	0.61	3.35	1.81	1.81	1.37	1.91	1.60	0.15	12.43	18.95
Indians	0.61	1.00	1.71	1.37	0.43	0.57	0.31	0.30	0.74	1.18	0.18	1.05	0.06	0.34	0.05	0.05	0.53	0.25	0.00	0.20	4.61*	10.64*
Other	0.50	1.11	5.25*	0.33*	1.14	0.86	0.88	0.52	0.92	1.11	0.80	4.14	0.69	0.71	0.00	0.00	1.00	0.68	0.14	0.05	11.33	9.70
Education:																						
Up to STPM	0.54	1.82	1.15	2.30	0.49	1.71	0.34	0.87	0.73*	1.40*	0.42	0.97	0.50	3.22	1.81	1.81	0.47	1.66	1.55	0.30	7.99*	16.46*
Diploma	0.72	0.70	2.93	0.46	0.64	0.60	0.43	0.23	1.01	0.79	0.33	0.54	0.20	0.38	0.04	0.04	0.33	0.42	0.33	0.00	6.96	4.13
Graduate	0.61	0.44	2.56	4.32	0.67	0.55	0.80*	0.29*	1.29	2.94	0.45	2.31	1.54	0.41	1.61	1.61	1.39*	0.19*	1.09	0.17	12.03	11.65
Postgraduate	2.15	1.59	3.00	0.81	0.93	0.79	0.58	0.21	1.06	2.63	0.44	0.49	0.53	0.30	0.00	0.00	3.28	1.91	0.49	0.00	12.46	8.89

Appendix O: Continued

	Learntime		Keeptime		Looktime		Advicetime		Compleatetime		Submittime		Paytime		Supplytime		Plantime		Helptime		Total Time	
	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual	E-filing	Man-ual
Annual Income:																						
Less than RM36,000	0.51	0.69	0.84	3.03	0.59	0.59	0.50	1.13	0.85	2.70	0.44	2.31	0.92	2.08	0.81	2.20	1.13	0.39	0.26	0.36	6.86*	15.48*
RM36,000- RM69,999	1.05	1.27	3.43	2.05	0.63	0.70	0.45*	0.23*	0.89	0.93	0.40	1.08	0.49	0.40	1.33	0.73	0.98	0.55	1.35*	0.16*	11.00	8.10
RM70,000- RM149,999	0.83	2.74	1.55	2.92	0.74	4.97	0.62*	0.14*	1.48	1.80	0.43	0.77	1.31	6.91	1.58	3.36	1.59	4.60	1.64	0.00	11.77	28.22
RM150,000 or more	0.77	1.35	2.41*	0.35*	0.54	0.22	1.21	0.25	0.87	2.72	0.45	0.17	0.56	0.37	0.63	0.22	0.87	2.63	0.27	0.00	0.58	8.27
Tax Liability:																						
No tax liability	0.54	1.23	4.50	3.37	0.70	0.67	0.57*	0.33*	1.31	1.39	0.52	1.24	0.30	0.22	1.69	1.57	0.55	0.31	1.78	0.29	12.47	10.62
Less than RM1,000	1.09	0.91	1.74	1.22	0.55	0.62	0.43	1.15	0.80	1.28	0.28*	2.87*	0.85	2.47	2.02	1.89	1.42	0.51	1.76	0.21	11.05*	13.13*
RM1,000- RM2,999	0.69	0.57	0.97	0.81	0.63	0.56	0.44	0.31	0.95	0.94	0.55	0.36	0.72	0.81	0.39	0.15	0.88	0.85	0.10	0.15	6.33	5.53
RM3,000- RM6,999	0.81	0.74	1.63	4.00	0.90	0.80	1.08	0.46	1.61	4.42	0.66	0.29	2.64	0.47	0.45	0.00	1.05	0.40	0.36	0.15	11.20	11.74
RM7,000 or more	0.68	3.99	1.70	3.41	0.53	6.30	0.63	0.03	0.51	3.53	0.31	0.63	0.53	9.40	0.43	4.57	1.95	7.58	0.16	0.00	7.75	39.44
No. of Income Source(s):																						
1	0.83	1.24	2.23	2.63	0.62	1.20	0.58*	0.61*	1.01	1.79	0.43	1.59	0.67	1.96	1.19	1.73	1.05	1.03	1.21*	0.23*	9.83	14.03
2	0.80	1.15	1.27	0.80	0.63	0.59	0.33	0.18	0.92	2.01	0.29	0.43	1.71	0.31	1.50	0.17	1.75	1.51	0.15	0.00	9.35	7.13
3 or more	0.85	0.08	4.40	0.25	1.05	0.08	0.40	0.08	1.38	0.08	0.59	0.08	1.01	0.08	0.20	0.08	1.70	0.17	0.20	0.00	11.77	1.00
Engagement of Tax Professional:																						
Yes	0.57	1.99	0.80	1.53	0.47	2.75	1.15*	1.42*	1.48	1.68	0.45	0.81	1.71	4.81	7.65	7.43	1.75	3.41	5.24	0.27	21.26	26.10
No	0.87	1.02	2.44	2.67	0.67	0.70	0.43*	0.34*	0.93	1.83	0.41*	1.64*	0.64	0.98	0.00	0.00	1.05	0.44	0.26*	0.19*	7.72	9.81

Note: *Significant difference at 0.05 level.

Refer to Table 7.21 to 7.25 in Section 7.3.4 to 7.3.8, Chapter 7 for number of respondents for each characteristic by filing methods. Number of respondents is not stated here due to space issue.

Appendix P: Distribution of Ethnicity by Employment Status and Educational Attainment

(a) Cross-Tabulation of Ethnicity by Employment Status and Educational Attainment

	Malay		Chinese		Indian		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Employment Status:										
Employed	100	55	59	33	10	6	12	7	181	100
Self-employed	13	25	32	60	6	11	2	4	53	100
Other	6	75	2	25	0	0	0	0	8	100
Total	119	49	93	38	16	7	14	6	242	100
Educational Attainment:										
Up to STPM	45	45	39	39	10	10	5	5	99	100
Diploma	21	60	10	29	0	0	4	11	35	100
Graduate	36	47	32	42	3	4	5	7	76	100
Postgraduate	17	61	10	36	1	4	0	0	28	100
Total	119	50	91	38	14	6	14	6	240	100

(b) Cross-Tabulation of Employment Status by Educational Attainment for Chinese

	Up to STPM		Diploma		Graduate		Postgraduate		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Employed	17	29	8	14	26	45	7	12	58	100
Self-employed	21	68	1	3	6	19	3	10	31	100
Other	1	50	1	50	0	0	0	0	2	100
Total	39	43	10	11	32	35	10	11	91	100

(c) Cross-Tabulation of Ethnicity by Educational Attainment for Self-Employed

	Malay		Chinese		Indian		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Up to STPM	7	21	21	64	3	9	2	6	33	100
Diploma	1	50	1	50	0	0	0	0	2	100
Graduate	5	42	6	50	1	8	0	0	12	100
Postgraduate	0	0	3	100	0	0	0	0	3	100
Total	13	26	31	62	4	8	2	4	50	100

Note: The majority of self-employed having the lowest education attainment and 64 percent of the lowest education attainment self-employed consisted of Chinese. Surprisingly, the majority of self-employed with graduate and postgraduate degree were also Chinese.

Appendix Q: Malaysia Internet and Broadband Usage

Malaysia Internet and Broadband Usage											
Percentage of Individuals using the Internet											
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
21.38	26.70	32.34	34.97	42.25	48.63	51.64	55.70	55.80	55.90	56.30	61.00
Fixed (wired) Internet subscriptions (in million)											
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1.659	2.119	2.633	2.991	3.546	4.155	4.489	4.931	5.222	5.592		
Fixed (wired) Internet subscriptions per 100 inhabitants											
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
7.09	8.84	10.74	11.94	13.85	15.92	16.88	18.23	18.99	20.01		
Fixed (wired)-broadband subscriptions (in million)											
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
0	0.004	0.019	0.110	0.253	0.483	0.751	1.025	1.319	12542	1.847	2.148
Fixed (wired)-broadband subscriptions per 100 inhabitants											
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
0.00	0.02	0.08	0.44	0.99	1.85	2.82	3.79	4.79	5.52	6.50	7.44

Source: Time series statistics: 2000 to 2011, published by International Telecommunication Union, available at <http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>.